OneMediaHub Version 14.5
Installation and Operation Guide

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This document is provided for informational purposes and should be used for reference only.

Chapter 1. Introduction

This document details how to install, configure, operate, and maintain the OneMediaHub; it also describes the system architecture and the role and usage of the different components.

Funambol also offers a set of Server APIs that can be used as extensions to OneMediaHub features and to build third party applications into it; one example is the AJAX Portal, available out of the box in the OneMediaHub, and completely built on top of the Server API layer.

For developers' specific documentation on Server APIs, please refer to [26].

1.1 Audience

This guide is addressed to system administrators.

1.2 Prerequisites

Important

OneMediaHub is supported only on GNU/Linux 32/64-bit distributions.

The OneMediaHub installation depends on the installation of certain software packages on the target system. The following packages must be installed and can all be downloaded for free from the Internet. Please make sure that the package version is correct; if it is not or if a package is not installed, please download the correct package from the URL provided:

- MySQL 5.5 or 5.6 (see [5])
- MySQL Connector/J (see [6])
- Java Platform (JDK) 7 (see [3])

  ### Note

  If you wish to run the OneMediaHub on a 64-bit architecture, you must use the 64-bit JDK.

  ### Warning

  OneMediaHub does not support OpenJDK.

- Xuggle Xuggler (see [29] and Appendix G, *Xuggle Xuggler FAQs*)

Chapter 2. System overview

The following sections describe the OneMediaHub architecture and the various OneMediaHub components. To get started with the installation procedure, skip to Chapter 3, *Installation and configuration*.

2.1 OneMediaHub architecture

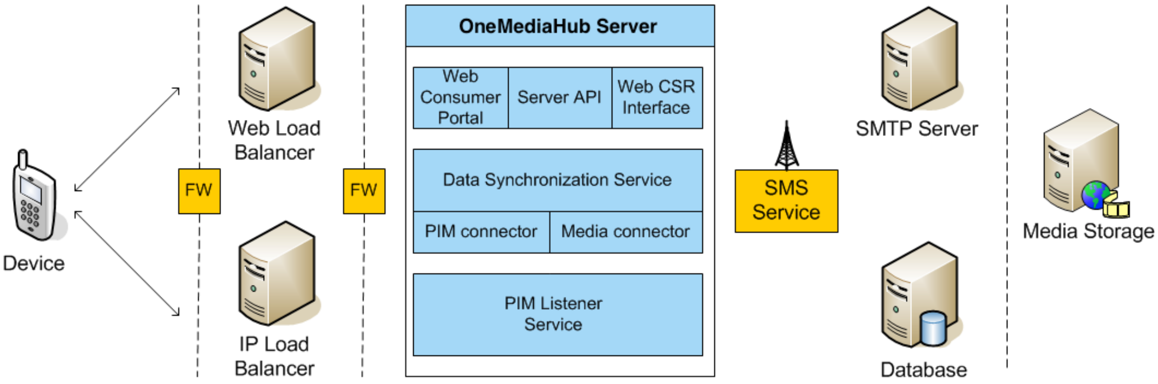
The system deployment architecture in the OneMediaHub is logically made up of the components illustrated in Figure 2.1, "OneMediaHub system architecture". For the sake of clarity, each component in the figure is represented by a single box, but as explained later, all systems can be made redundant to increase availability and support a greater load.

The overall goal of the system is to offer cloud-based synchronization of Media (Pictures, Videos, and Files) and PIM (Contacts, Calendar, Tasks, and Notes) across mobile phones, tablets, computers, and other devices.

2.1.1 Roles and responsibilities

This section describes the role and the main responsibilities of the components illustrated in Figure 2.1, "OneMediaHub system architecture".

Figure 2.1. OneMediaHub system architecture



Device

Any physical device (phone, tablet, computer, connected device) that can communicate with the OneMediaHub server for Media and/or PIM Sync, either natively or through a downloadable client.

Examples are:

- smartphones or tablets (e.g. iPhone/iPad, Android, BlackBerry, etc.) running OneMediaHub
- mobile phones with a native SyncML client
- computers running OneMediaHub for Windows

Devices are the main interface through which users access OneMediaHub.

Main responsibilities include:

- providing the graphical user interface
- initiating the communication with the server

- hosting the local data (address book, pictures, etc.)
- hosting the sync engine (for Media only)
- collecting/detecting the changes

The communication between the device and the OneMediaHub Server is based on the TCP/IP protocol.

HTTP Load Balancer

Both for Media and for PIM, device-server communication is built on protocols transported over HTTP. As for common HTTP traffic, a load balancer (see Figure 2.1, “OneMediaHub system architecture”) can therefore be used to balance the incoming load by distributing it amongst different nodes of a server cluster.

The main responsibilities of the HTTP load balancer include:

- providing the front-end of the OneMediaHub system
- distributing the device requests amongst the nodes of the server-side cluster
- detecting failures on the cluster's nodes, redirecting traffic to the active nodes if one of the nodes fails

Note

> The HTTP load balancer is not provided as part of the default installation or deployment. Many different solutions, both hardware and software, can be adopted and organizations may have different best practices already in place. A common solution is to use Apache and mod_cluster as described in Section 5.6, “Configuring OneMediaHub load balancing with Apache HTTP Server (`httpd`) and mod_cluster”.

OneMediaHub Server

The Server is the core of the OneMediaHub PIM synchronization. As illustrated in Figure 2.1, “OneMediaHub system architecture”, it comprises several components, described in detail in the following sections.

Data Synchronization Service

The role of the Data Synchronization (DS) Service is to provide the synchronization services and to communicate directly with the devices using the OMA DS protocol, formerly known as SyncML (see Section 2.3, “Execution flow of a request”). The main responsibilities of the Data Synchronization Service are:

- hosting the synchronization engine (see Section 2.2, “The Synchronization Engine”)
- accepting and serving synchronization requests
- handling low level device information
- providing an interface towards the back-end services

Media Connector

The Media Connector is the counterpart of the PIM Connector for Media synchronization. It is deployed together with the DS synchronization engine. It has the following responsibilities:

- searching for the Media items that the user has modified on the server
- storing the Media items on the Media Storage

See Section 2.6, “Media synchronization” for more details.

PIM Connector

The PIM Connector allows the OneMediaHub server to sync PIM data such as contacts, events, and notes. It consists of two main components: the connector itself and the PIM Listener Service.

The PIM Connector is deployed together with the DS synchronization engine. It has the following responsibilities:

- searching the PIM items that the user has modified on the server
- keeping the client updated with the PIM data stored on the server

PIM Listener Service

The PIM Listener Service is a separate process from the Data Synchronization Service and Portal process; it has the following responsibilities:

- polling the user PIM database regularly to check for updates
- triggering an action in the Data Synchronization Service if there are any changes to the user's PIM data to be delivered to the device

Portal

The OneMediaHub Portal implements the main interface through which users and administrators interact with the OneMediaHub platform over the Internet. The Portal component consists of

- a **web-based consumer portal**, built with AJAX technology, through which users can sign up for the service, set up their devices, download the OneMediaHub apps, access and manage their Media data, PIM data, and profile
- a **web-based customer service representative (CSR) interface**, which allows an operator to access user information and perform maintenance of user accounts

Server API

Funambol also offers a set of Server APIs that can be used to extend the OneMediaHub and to build third party applications on top of it; one example is the AJAX Portal, available out of the box within the OneMediaHub, and completely built on top of the Server API layer.

The OneMediaHub client Apps use the Server APIs to perform Media synchronization without basing on the SyncML protocol, while PIM synchronization remains SyncML-based.

For developers' documentation specific to the Server APIs, refer to [26].

Media Storage

The Media Storage is the final repository where the Media Connector stores the user's media and files. In the current version, the OneMediaHub can use a local filesystem and an online store provider as well.

See Section 2.6, “Media synchronization” for more details.

SMS Service

This is the service used to send SMS messages to user devices. The OneMediaHub platform uses an external SMS gateway for this, which translates the HTTP-based messages sent by the server into SMS messages, and injects them into the network servicing the target user.

SMS messages are used to

- send users the download link for OneMediaHub client Apps
- configure over-the-air the native clients embedded in the phones
- notify the device that a synchronization is needed because something has changed server-side: this is SMS push, as alternative to TCP-based push (see Section 2.4.2, “SMS push”)

Note

> The SMS Service is not provided out of the box. OneMediaHub, by default, supports SubitoSMS. Support for other SMS service providers is configurable. For more information, see Important.

SMTP Server

This is the server used by the OneMediaHub to send Emails to external recipients.

Email can be used for

- inviting users to join the service
- activating user accounts
- supporting users (e.g. forgot password)
- any other communication to users

Database

This is the database server. OneMediaHub supports the MySQL database system.

2.2 The Synchronization Engine

The Synchronization Engine is the component that implements the synchronization logic, i.e.

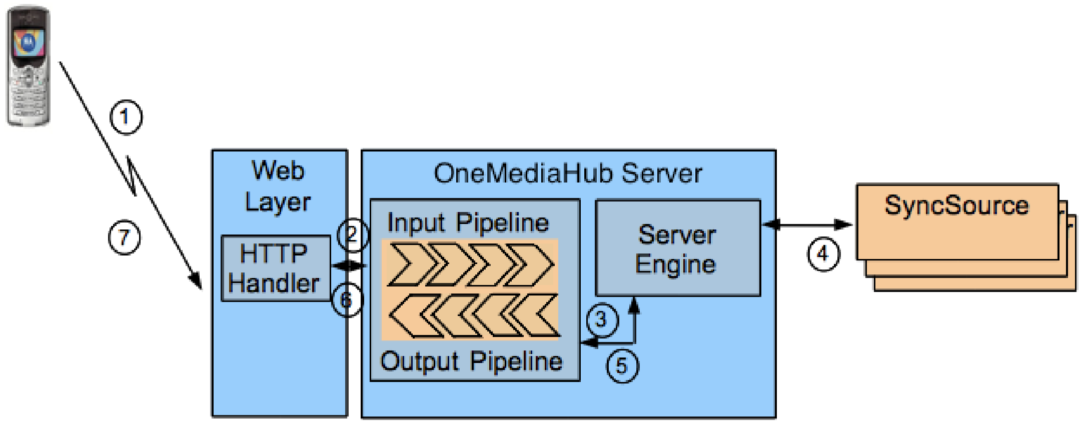
- identify the sources and the destinations of the data sets to be synchronized
- identify the data that needs to be updated/added/deleted
- determine how updates must be applied
- detect conflicts
- resolve conflicts

In other words, the Synchronization Engine is the core of any data synchronization server. The basic framework interfaces and classes are grouped in the package `sync4j.framework.engine`.

2.3 Execution flow of a request

The execution flow of an OMA DS request is illustrated in Figure 2.2, “Execution flow of an OMA DS request”.

Figure 2.2. Execution flow of an OMA DS request



A synchronization session starts with the client device sending a first `SyncML` message to the server. The request then follows the flow described below:

1. When a new request comes from the client, the `HTTP` handler takes care of it. After some processing, for example the transformation of the binary message into a more manageable form or the association of the incoming message to an existing synchronization session, the `HTTP` handler passes the request to the synchronization server.

2. The message first goes through the input message processing pipeline according to the application needs.

3. The manipulated message comes out of the input pipeline and goes into the server engine for synchronization processing.

4. When needed, the server engine calls the services of the external (and custom) `SyncSource`s in order to access the real data stores.

5. After processing the incoming message, the server engine builds the response message, which goes through the output message processing pipeline for post-processing.

6. The response message is then returned to the `HTTP` handler, which packs the `SyncML` message into the `HTTP` response and sends it back to the device.

2.4 OneMediaHub push

This section describes the OneMediaHub push technology. OneMediaHub push is based on the delivery of a so called push notification. A push notification is a small packet of data that OneMediaHub sends to a device in order to trigger a new synchronization. The notification package is technically called `PKG#0` and contains information about the server that is requesting a synchronization, which data source must be synchronized, which type of synchronization should be performed. The `PKG#0` can be delivered in many different ways.

OneMediaHub supports the following delivery mechanisms:

1. Server-to-client Push

   - TCP/IP Push

     - *Cloud push* using Apple Push Notification Service (APNS)

- SMS Push

2. Client-to-server Push

Note

New data is not automatically sent to the device; it is always the device that starts the communication for the exchange of data.

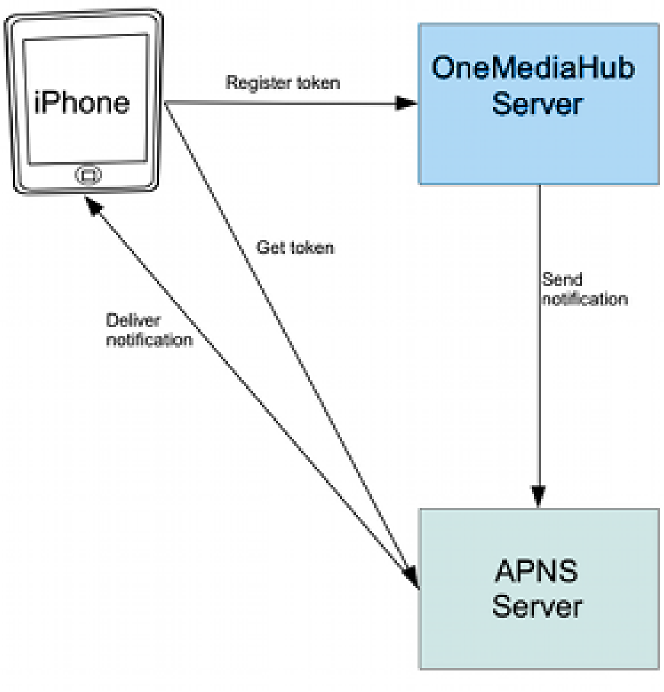
Note

Out-of-the-box, OneMediaHub detects the most appropriate push mechanism for the device and uses it.

2.4.1 Cloud push using APNS

As illustrated in Figure 2.3, “Cloud push using APNS”, the iPhone obtains a token from the APNS server and registers the token on OneMediaHub. OneMediaHub then uses the registered token to send push notifications to a particular device.

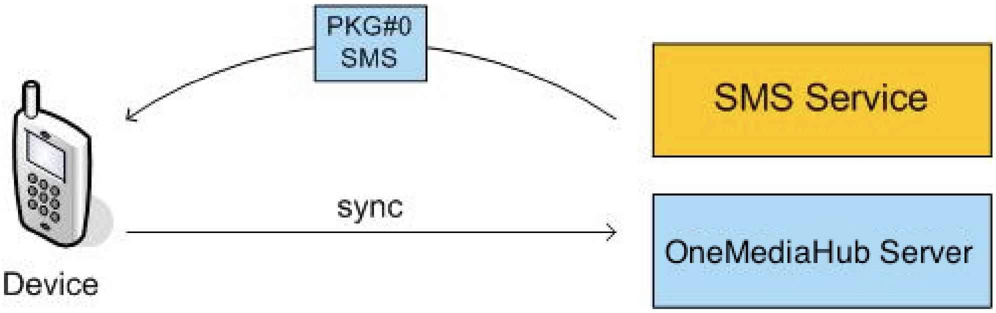
Figure 2.3. Cloud push using APNS



2.4.2 SMS push

As illustrated in Figure 2.4, “SMS push”, in the case of SMS push, PKG#0 is delivered with one or more SMS messages. The basic flow is the same as in the other two techniques: once the device receives an SMS containing a push notification, it starts a new synchronization for the specified data sources.

Figure 2.4. SMS push



Note

This mechanism requires an integration with an SMS service that is able to deliver binary SMS messages (see the section called “SMS Service” for more details).

2.4.3 Push compatibility table

Not all devices have the same capabilities in terms of push or even synchronization. Certain devices have a built-in PIM SyncML client, others do not.

The table below shows which push technology can be used with particular classes of devices.

Device class	APNS	SMS push
PIM		
BlackBerry devices (with OneMediaHub for BlackBerry)	N	N
iPhone (with OneMediaHub)	N	N
Symbian devices (with OneMediaHub for Symbian)	N	N
Android devices (with OneMediaHub for Android)	N	N
Desktop clients (with OneMediaHub for Windows)	N	N
MEDIA		
Desktop clients (with OneMediaHub for Windows)	N	N
iPhone (with OneMediaHub)	Y	N

2.5 OneMediaHub clustering

OneMediaHub clustering has been designed with the following principles in mind:

- high availability: it must be possible to have redundant architectures for all components so that users will not experience a permanent error if a problem arises in one of the components in the system
- high load support: the redundant components must work in a load balanced architecture
- low maintenance: it must be easy to modify the configuration of each cluster

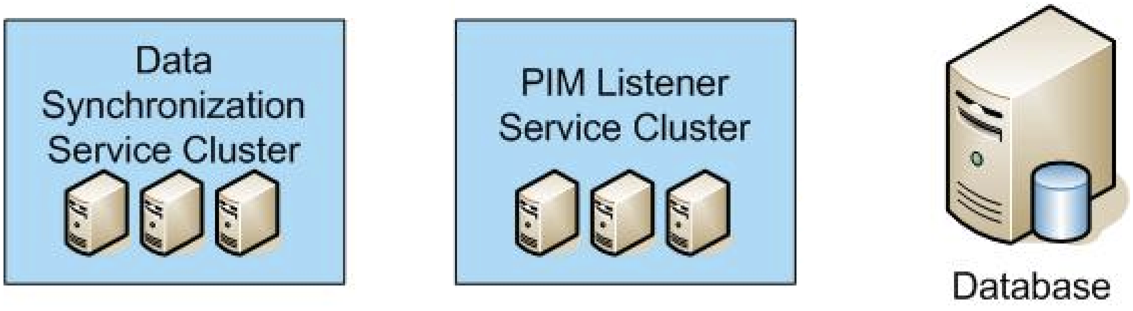
- automatic recovery: no administrative action must be needed when a cluster node goes down in order for the load to be redistributed amongst the remaining nodes

As illustrated in Figure 2.5, “OneMediaHub clustering”, which should be seen as an alternative representation of the elements in Figure 2.1, “OneMediaHub system architecture”, OneMediaHub can be split into three clusters:

- Data Synchronization Service cluster
- PIM Listener Service cluster

Additional clustering techniques for improving high availability, performance and reliability of the Database are described in Chapter 6, *Database partitioning*.

Figure 2.5. OneMediaHub clustering


Data Synchronization Service Cluster
PIM Listener Service Cluster
Database

2.5.1 Data Synchronization Service cluster

A Data Synchronization Service cluster is made up of one or more Data Synchronization Service nodes. Each node has the same properties and configuration as the others so that all nodes are identical from a SyncML client perspective.

All nodes of the cluster must be installed on a network that allows IP multicast traffic. The multicast group of the Data Synchronization Service cluster has the following properties:

Multicast group name	`ds-server`
Multicast address	`228.10.58.01`
Multicast port	`47101`

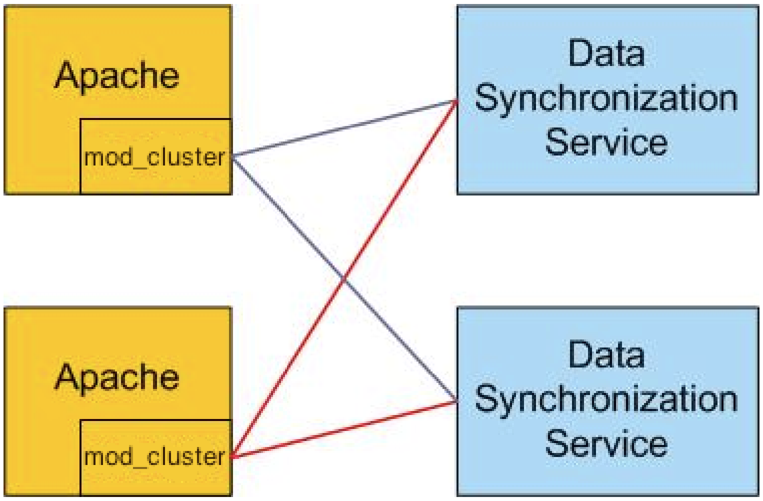
Note

All Data Synchronization Service nodes in a cluster are dynamically aware of other nodes. This means that each node is dynamically updated with the changes in the cluster when a new node is added or removed. No administrative tasks are required when, for example, a new node is added in order to improve the number of users to support.

Load balancing of SyncML and HTTP traffic is achieved by simply using any HTTP load balancing technique commonly used in this space.

A common practice is to do this with an Apache load balancer battery, connected to the Data Synchronization Services through the mod_cluster module (see Figure 2.6, “Data Synchronization Service cluster”).

Figure 2.6. Data Synchronization Service cluster



See Section 5.6, “Configuring OneMediaHub load balancing with Apache HTTP Server (`httpd`) and mod_cluster” on how to configure Apache with mod_cluster in a clustered environment.

Note

The Data Synchronization Service stores its main configuration files in the file system under `*<root directory of your OneMediaHub installation>*/config`. If a cluster is installed, all nodes in this directory must have the same content. This can be achieved using a shared file system or keeping the node in sync with `rsync`.

2.5.2 PIM Listener Service cluster

A PIM Listener Service cluster is made of one or more PIM Listener Service nodes; each node has the same properties and configuration as the others so that all nodes are completely interchangeable. The load of these listeners is measured in terms of how many users each PIM Listener Service monitors for changes; this load is automatically balanced by being distributed amongst all available nodes. This means that every time the cluster changes, all active nodes re-compute the subset of users they have to monitor, automatically redistributing the users.

Note

This distribution is based on a hashing algorithm which spreads users equally across the nodes of the cluster. Still, there is no guarantee that each node monitors exactly 1/N (where N is the number of nodes in the cluster) of the users at all times.

All nodes of the cluster must be installed on a network that allows IP multicast traffic. The multicast group of the PIM Listener Service cluster has the following properties:

Multicast group name	`pimlistener`
Multicast address	`228.10.31.01`
Multicast port	`43101`

Note

All PIM Listener Service nodes in a cluster are dynamically aware of other nodes. This means that each node is dynamically updated with the changes in the cluster when a new node is added or removed. No administrative tasks are required when, for example, a new node is added in order to improve the number of users to support.

2.6 Media synchronization

The OneMediaHub is able to synchronize media such as normal files, pictures and videos (from now on all of these will be simply referred to as *media*).

Media files are stored on the Media Store - whereas media meta data is stored in the database.

In the current version, OneMediaHub can use the local filesystem or an online storage provider as media storage.

2.6.1 File system structure

For each user, the *media* sync sources define a subdirectory where all media files belonging to the user are stored.

The entry points for the media types are:

Picture	*<root directory of your OneMediaHub installation>*`/ds-server/db/picture`
File	*<root directory of your OneMediaHub installation>*`/ds-server/db/file`
Video	*<root directory of your OneMediaHub installation>*`/ds-server/db/video`

Note

In a cluster environment, the above mentioned directories must be shared between all server nodes.

To rationalize the file system, user directories are organized in a tree structure, where each user's directory path is structured in eight nested sub-directories, which may be located on different disks to split the disk load.

The name of each subdirectory is composed of two characters, chosen from a pseudo-random string of 16 characters, e.g. *<root directory of your OneMediaHub installation>*`/ds-server/db/picture/ab/cd/ef/gh/il/mn/op/qr`.

The reason behind this complicated structure is that each directory can have 676 subdirectories (26 × 26), so for 8 levels the maximum number of subdirectories is 26^16; the great number of possible combinations makes the picture folder location difficult to guess. The nested tree structure avoids having too many subdirectories in any given directory.

The string is computed as a hash of the username (using the MD5 algorithm), in order to make the directory location unpredictable and to have a balanced tree, where user folders are equally distributed.

The actual user folder is located in the last subdirectory of the tree; in order to make it less comprehensible, the folder name is computed as the username encoded in Base64.

Security considerations

Even if it is difficult to guess, the directory tree is not secure, since it is computed starting from the username. This means that, given the user name and knowing the algorithm used, you are always able to derive the directory path.

For example, if the hash for the user `johndoe` is `hgkvnviumvngrdpo`, the user's pictures are stored in the directory `<`*`root directory of your OneMediaHub installation`*`>/ds-server/db/picture/hg/kv/nv/iu/mv/ng/rd/po/am9obmRvZQ==`.

Security is guaranteed by the file name, a random string of thirteen alphanumeric characters, followed by the real file extension (added to guarantee the correct content type in the HTTP response.) So even if you know the path where the file is stored, you cannot guess the file name and retrieve the picture.

The hash function guarantees that the distribution of hashes in the hash space is adequate, and that, for a large number of files, they are evenly distributed inside the hierarchy, thus splitting the load.

2.6.2 `-ext` subdirectories

For each picture (or video) stored in the user directory there is also a subdirectory with the name equals to the file name followed by `-ext`, where additional files related to the picture (or video) are stored, such as thumbnails, transcoded video or any other useful data. For example, when a new picture with name `1pbo6y7xoyjr1` is saved (how files are named on the local file system is explained in Section 2.6.1, “File system structure”), the folder `1pbo6y7xoyjr1-ext` is also created.

The `-ext` subdirectory is created when the file is saved into the user directory, and it is removed when the corresponding file is deleted.

Note

> Files stored in the `-ext` directories and temporary files are not computed in the user quota.

2.6.3 Deleting media files

The OneMediaHub provides a scheduled job (executed every one hour) that manages the media binaries deletion. If a user deletes some media files, first of all the tuples will be set to `deleted` in the database, then, by execution of the scheduled job, the binaries will be deleted from the file system (or from the media storage).

This behavior also impacts the deletion of users via Server API (SAPI): when a user is deleted, all the tuples in the `fnbl_file_data_object` table owned by that user will be marked as `deleted` and the owner will be changed into `admin`, while the original user will be saved in the column `deleted_owner`. As mentioned above, the binaries will be deleted by the scheduled job.

Note

All media items marked as `soft deleted` won't be removed by the scheduled job.

2.6.4 Temporary items management

Temporary items are used to allow the resumable upload for media. They should be considered *valid* for 24 hours; in that time frame the server reserves disk memory quota to finish the upload. In no case will the temporary items be considered by the server as part of the user quota.

After the 24 hours, the task that manages the media deletion (see Section 2.6.3, “Deleting media files”) deletes the database tuples older than one day for temporary items and their related binaries, if they exist. It deletes also the items older than one day for which only the metadata are saved.

2.6.5 Scaling the file system

Since there is a single mount point for pictures, `<`*`root directory of your OneMediaHub installation`*`>/ds-server/db/picture`, OneMediaHub supports the following systems for scaling the file system:

- DAS (Direct Attached Storage) for small deployments.
- NAS (Network Attached Storage) for medium deployments.
- SAN (Storage Area Network) for very large deployments.

2.6.6 Encryption

Media may be encrypted once it is moved to the final storage destination. A media item is encrypted when the whole item is received on the server, so the encryption process is completely managed by the server itself.

2.6.6.1 How encryption works

If the server is configured to use encryption (see Section 2.6.6.2, “How to configure the server to use encryption”), OneMediaHub encrypts your data as it writes it to its media storage and decrypts it when you access it using the authenticated download API. This means that if you would directly access stored media, you would see encrypted objects. However, all the APIs are trasparent regarding media encryption, so that if your server has encryption enabled all the API calls will work properly.

Two different algorithms can be used to encrypt media: AES128 and AES256. They are block cipher symmetric-key algorithms, so the same key is used for both encrypting and decrypting the data. They differ in the key size (128 and 256 bits respectively).

2.6.6.2 How to configure the server to use encryption

To enable encryption, in the configuration file `<`*`root directory of your OneMediaHub installation`*`>/config/portal/portal-ext.properties` these properties have to be modified:

```
#
# Set property to true for enabling the encryption, false otherwise.
#
```

```
encryption.enabled=true
encryption.keyfactory-
class=com.funambol.framework.tools.encryption.AES128EncryptionKeyFactory
encryption.keyfactory.salt=cGFzc3dvcmQ=
```

To enable AES128 use the `AES128EncryptionKeyFactory` class - for AES256 the class `AES256EncryptionKeyFactory` has to be used. For both a Base64-encoded salt has to be specified. The salt should be a random value - and it MUST not change once media has been uploaded. For AES256 strength encryption the Unlimited Strength Java(TM) Cryptography Extension Policy Files have to be installed. They may be freely downloaded from the Oracle Java SE website (see [4]).

Warning

If encryption is disabled, the media items are served by the storage system (e.g. S3) directly, with no additional load on the server.

If instead encryption is enabled, all requests pass through the server, so that the increased load needs to be considered in sizing the system and tuning its performance. Encryption causes also additional storage usage and costs more computational power.

2.6.7 Storing files on an online file storage provider

Media and files may be stored on an online file storage provider instead of being stored on the server's local file system. Online file storage providers are Internet hosting services specifically designed to host static content, typically large files that are not web pages.

OneMediaHub supports only the Amazon S3 file storage provider.

There are few basic concepts behind online file storage providers (the names used by Amazon S3 are *emphasized*):

Provider
the specific online file storage provider

Blobs (*objects*)
are the fundamental entities. They consist of object data and metadata (set of name-value pairs)

Container (*bucket*)
blobs are stored in containers. For Amazon S3 there are no limits to the number of objects you can store in a bucket, and each user can have up to 100 buckets. The namespace for bucket names is global - this means that there could be only one bucket name for the provider for all accounts. The bucket name is in fact part of the URL used to download objects. For instance, all objects in a '**mydocs**' bucket can be downloaded using http://mydocs.s3.amazonaws.com (you may use a different URL by setting a CNAME entry for your domain in the DNS server settings)

Key
is the unique identifier for a blob in a container. Together, a container name and a key uniquely identify an object on the online storage provider

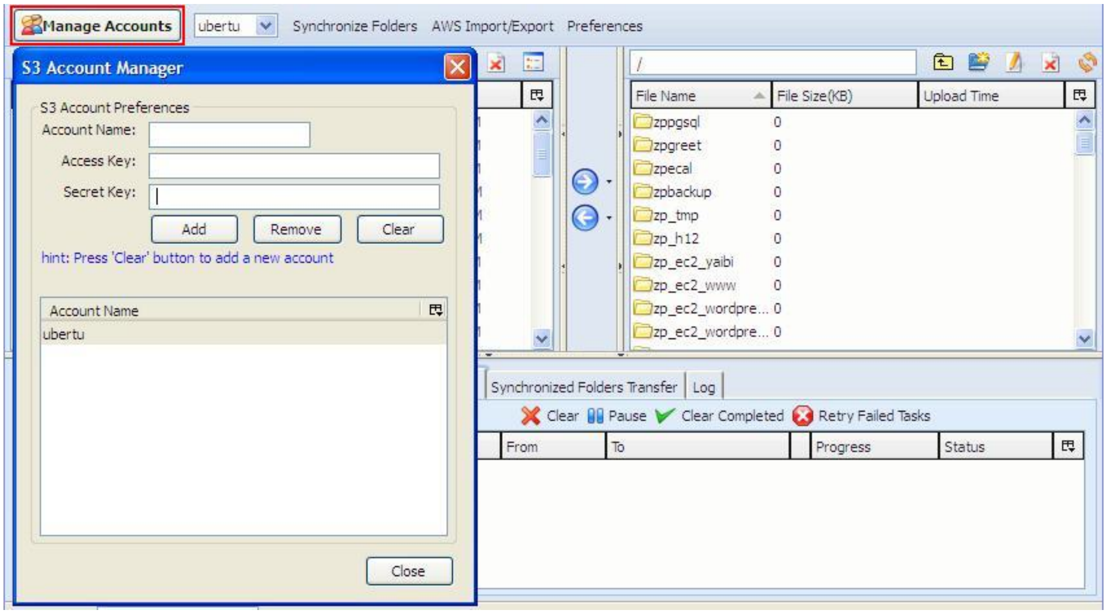
2.6.7.1 How to create an Amazon S3 bucket

In order to use Amazon S3 as media storage provider for the OneMediaHub, a bucket must be created on S3.

Go through the following steps to create a bucket:

1. Use a plug-in for your web browser (e.g. S3 Organizer, available for Firefox) and connect to your Amazon S3 account:

Figure 2.7. Connecting to your Amazon S3 account

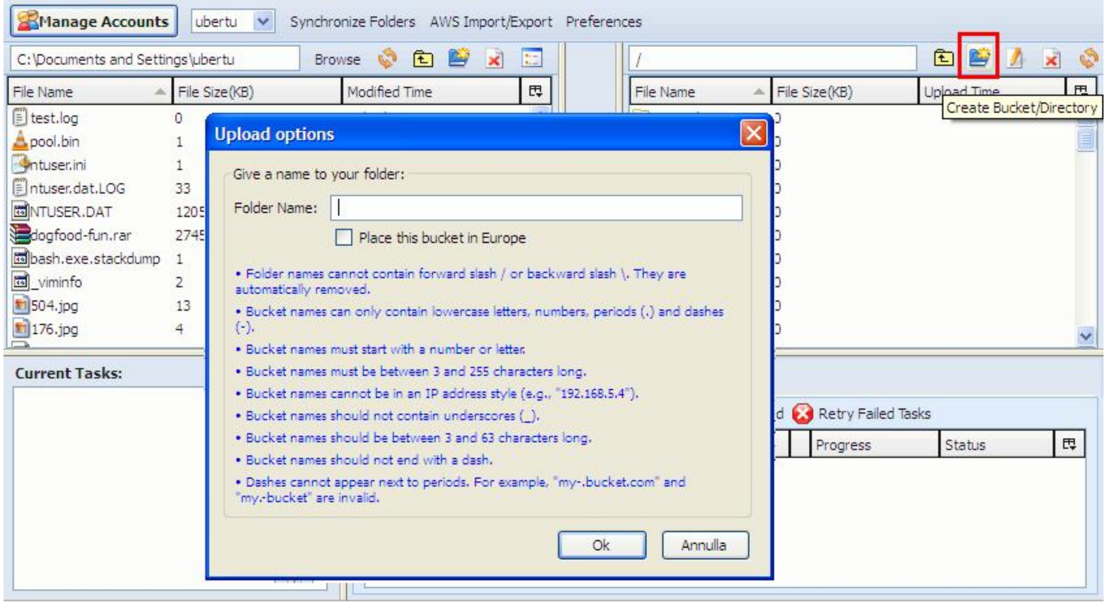


hint: Press 'Clear' button to add a new account

File Name	File Size(KB)	Upload Time
zppgsql	0	
zpgreet	0	
zpecal	0	
zpbackup	0	
zp_tmp	0	
zp_h12	0	
zp_ec2_yaibi	0	
zp_ec2_www	0	
zp_ec2_wordpre...	0	
zp_ec2_wordpre...	0	

2. Click on **`Create Bucket/Directory`** or right click on the bucket panel and select the **`Create Directory`** option:

Figure 2.8. Create a directory on Amazon S3



File Name	File Size(KB)	Modified Time
test.log	0	
pool.bin	1	
ntuser.ini	1	
ntuser.dat.LOG	33	
NTUSER.DAT	1205	
dogfood-fun.rar	2745	
bash.exe.stackdump	1	
_viminfo	2	
504.jpg	13	
176.jpg	4	

□ Place this bucket in Europe

- Folder names cannot contain forward slash / or backward slash \. They are automatically removed.
- Bucket names can only contain lowercase letters, numbers, periods (.) and dashes (-).
- Bucket names must start with a number or letter.
- Bucket names must be between 3 and 255 characters long.
- Bucket names cannot be in an IP address style (e.g., "192.168.5.4").
- Bucket names should not contain underscores (_).
- Bucket names should be between 3 and 63 characters long.
- Bucket names should not end with a dash.
- Dashes cannot appear next to periods. For example, "my-.bucket.com" and "my.-bucket" are invalid.

3. Enter the bucket name and then click **`Ok`**. The bucket will be created at the specified location, and your bucket will be visible in the buckets list.

Note

Don't use a dot (`.`) in the bucket's name, because in this case SSL over HTTP (HTTPS) will not work, as users will end up with S3-related certificate errors caused by bucket names containing a dot.

4. The bucket Access Control List (ACL) should be configured in order to grant access for the owner only, but in any case all the contents will always be private even if the bucket is public.

2.6.8 Transcoding

The video transcoding feature allows the user to play from the Portal and the iOS and Android mobile apps any of her videos uploaded to the cloud. It allows to play a wide range of video formats. When a user uploads a video, a transcoding service is running asynchronously, and when the transcoded video is available, its URL (called "playbackurl") will be included in the response of the *Retrieve videos* API call (see Section 3.5.8, “Retrieve videos” in *OneMediaHub Version 14.5 Server API Developer's Guide*). The transcoded video is called `playback.mp4` and it is saved in the user `-ext` folder like the thumbnails.

The service used for video transcoding is the Amazon Elastic Transcoder (see `http://aws.amazon.com/elastictranscoder`.) This service manages all aspects of the transcoding process in a transparent way for OneMediaHub and is designed to be highly scalable. Amazon Elastic Transcoder is built to work with the content stored on the Amazon S3 service and it uses the Amazon Simple Notification Service (Amazon SNS) to notify when a transcoded video is available (OneMediaHub uses HTTP notifications.)

Note

To enable media transconding on OneMediaHub, see Section 3.12.23, “How to enable media transcoding”.

Warning

If the transcoding feature is not enabled, the Portal is not able to play the following video formats:

3g2, AVI, MOV, MP2, MP4, MPEG, MPEG4, MPG, WMV.

To use Amazon Elastic Transcoder, you need an Amazon Web Services (AWS) account (see `http://docs.aws.amazon.com/elastictranscoder/latest/developerguide/getting-started.html`.) If you don't have an account yet, you'll be prompted to create one when you sign up.

There are few basic concepts behind Amazon Elastic Transcoder:

- A *transcoding pipeline* is a queue that manages the transcoding jobs. It specifies the input Amazon S3 bucket, the output Amazon S3 bucket, and an AWS Identity and Access Management (IAM) role that is used by the transcoder to access the videos.

- A *transcoding preset* is a template that contains the settings that the transcoder should apply during the transcoding process (i.e. the codec or the resolution.) When a job is created, the preset to be used must be specified. In this way, it's possible to specify the details of the transcoded video. The preset used by OneMediaHub is called `System preset: Generic 480p 4:3` and allows to generate a 480p transcoded video in mp4 format, with video codec H264 and bitrate 900 kbps (refer to the Amazon Elastic Transcoder Management Console for further details.)

- A *transcoding job* transcodes the video on the Amazon S3 output bucket specified in the pipeline.

The steps for using Amazon Elastic Transcoder are the following:

1. Create a bucket on Amazon S3 (see Section 2.6.7.1, “How to create an Amazon S3 bucket”). If OneMediaHub is configured to use S3 as media storage repository, you don't need to create a bucket for this goal, since you will use the one used as media repository

2. Configure Amazon SNS for sending HTTP notifications

3. Create a pipeline on Amazon Elastic Transcoder

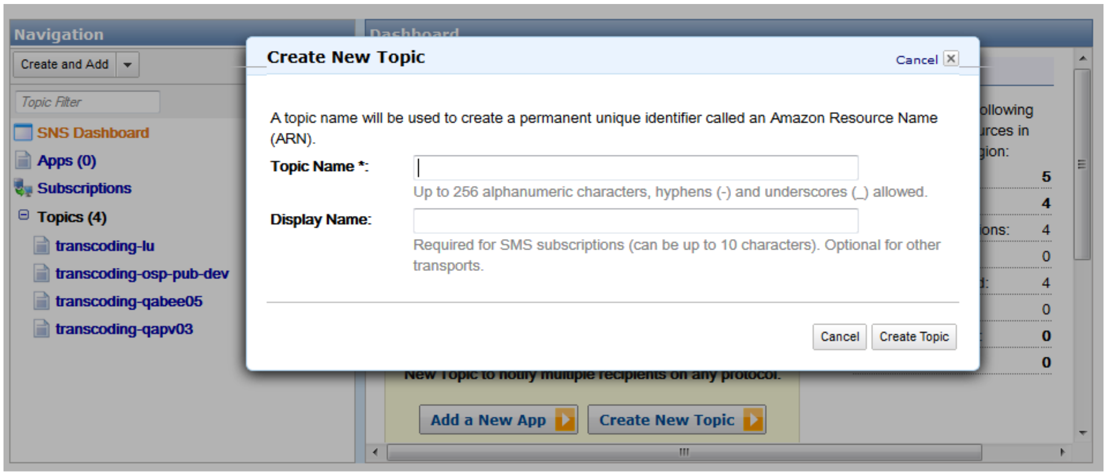
2.6.8.1 How to configure Amazon Simple Notification Service

For more details, see Amazon documentation at [1].

1. Access the AWS Console and select **`SNS`**. You will be redirected to the SNS Console

2. Click on **`Create New Topic`**

Figure 2.9. Amazon SNS: Create New Topic



A topic name will be used to create a permanent unique identifier called an Amazon Resource Name (ARN).

Topic Name *:

Up to 256 alphanumeric characters, hyphens (-) and underscores (_) allowed.

Display Name:

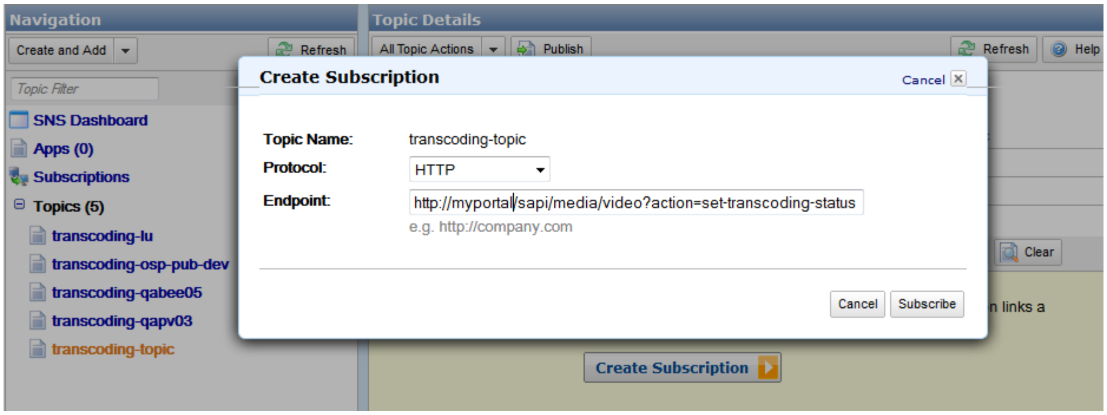
Required for SMS subscriptions (can be up to 10 characters). Optional for other transports.

3. Associate to the topic the subscription `http://<server_url>:<port>/sapi/media/video?action=set-transcoding-status`

Important

The server must be up and running since it will receive a notification.

Figure 2.10. Amazon SNS: Create Subscription



Topic Name: transcoding-topic

Protocol: HTTP

Endpoint: http://myportal/sapi/media/video?action=set-transcoding-status

e.g. http://company.com

The subscription is created with a "SubscriptionID" as "PendingConfirmation" until the subscription is confirmed.

4. Search in the file `portal.log` for the string `"Type":"SubscriptionConfirmation"` and retrieve the value for `SubscribeURL`

5. Open this URL in a browser

6. Check from within the SNS Console that the **`Subscription ID`** field will change from `PendingConfirmation` into a specific string value

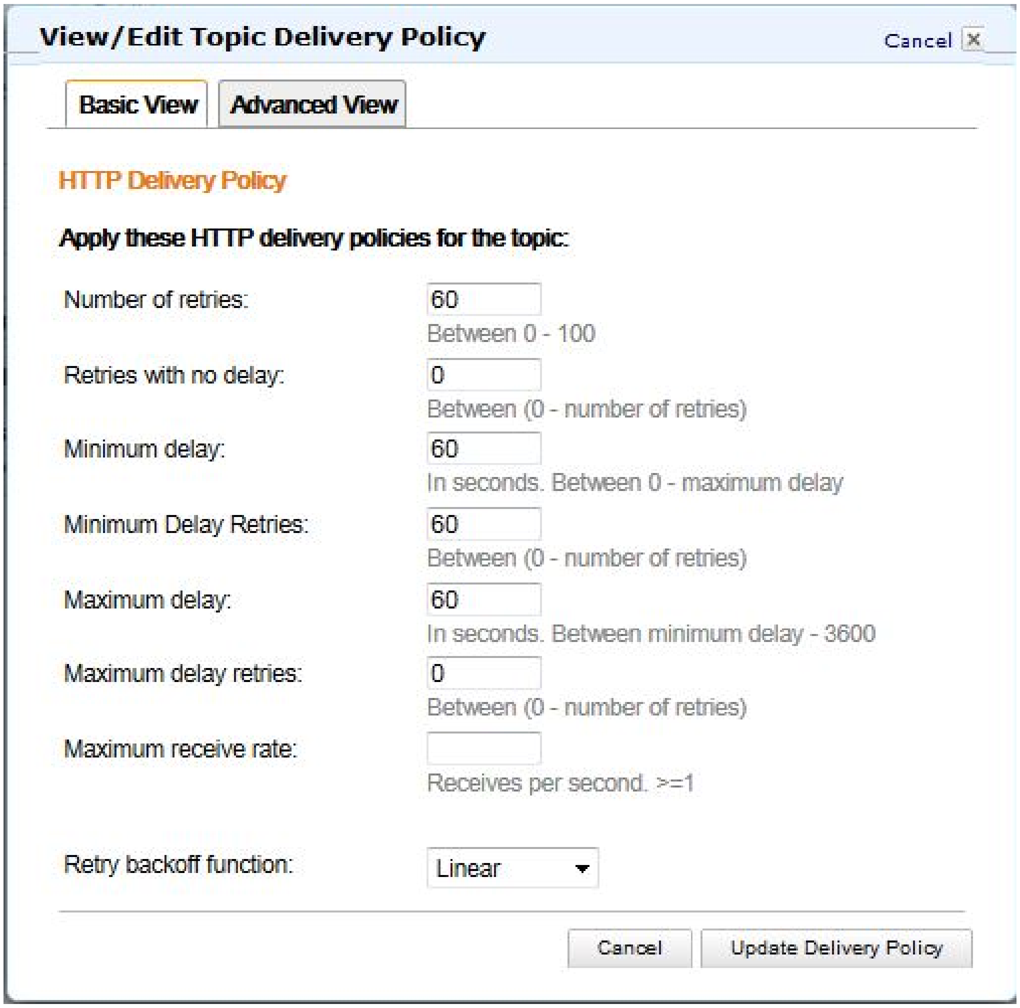
7. Select the created subscription and click on **`Delivery Policy`**. Configure the policy with:

```
Number of retries: 60
Retries with no delay: 0
Minimum delay: 60
Minimum Delay Retries: 60
Maximum Delay: 60
Maximum delay retries: 0
Maximum receive rate: EMPTY

Retry backoff function: Linear
```

(see Figure 2.11, “Amazon SNS: Delivery Policy”.) At this point the subscription is enabled.

Figure 2.11. Amazon SNS: Delivery Policy



Apply these HTTP delivery policies for the topic:

Number of retries:	60 Between 0 - 100
Retries with no delay:	0 Between (0 - number of retries)
Minimum delay:	60 In seconds. Between 0 - maximum delay
Minimum Delay Retries:	60 Between (0 - number of retries)
Maximum delay:	60 In seconds. Between minimum delay - 3600
Maximum delay retries:	0 Between (0 - number of retries)
Maximum receive rate:	Receives per second. >=1
Retry backoff function:	Linear

2.6.8.2 How to create a pipeline on Amazon Elastic Transcoder

For more details, see Amazon documentation at [2].

1. Open the AWS Elastic Transcoder Console at `https://console.aws.amazon.com/elastictranscoder/`

2. Click **`Create New Pipeline`**

3. Fill in the form as follows:

   1. **`Pipeline name`**: the name of the pipeline you want to create

   2. **`Input Bucket`**: the name of the bucket on S3

   3. **`IAM Role`**: choose `Elastic_Transcoder_Default_Role`

Note

The first time you work with Amazon Elastic Transcoder this role could be not available. Keep the default value in such a case

4. In the **`Configure Amazon S3 Bucket for Transcoded Files and Playlists`** section:

    a. **`Bucket`**: the name of the bucket on S3 (it's the same used in **`Input Bucket`**)

    b. **`Storage class`**: leave it empty

    c. Click on **`Add permissions`**: choose the permissions for Open/Download, View, and Edit the bucket's content to the AWS user or group that you want to have access to transcoded files and playlists

5. In the **`Configure Amazon S3 Bucket for Thumbnails`** section:

    a. **`Bucket`**: the name of the bucket on S3 (it's the same used in **`Input Bucket`**)

    b. **`Storage class`**: leave it empty

6. In the **`Notifications`** section: turn on all the events notifications selecting **`Use an existing SNS Topic`** and selecting the SNS topic you created on SNS

7. Click on the **`Create Pipeline`** botton at the end of the form

At the end of this procedure, you will have a Pipeline ID and this value should be added to the file `portal-ext.properties` as value of the property `ets.pipeline-id`.

2.6.9 Deleting transcoding jobs

OneMediaHub provides a scheduled job (executed every 7 days) that manages the deletion of the transcoding jobs stored in the database that are older than 7 days. When the scheduled job is executed, the records in the table `fnbl_trascoding_job` with creation date older than 7 days are removed. And, if the media item associated to the transcoding job, has transcoding status (field `transcoding_status` in table `fnbl_file_data_object`) set to `Q` (*in queue*) or `P` (*in progress*), this status must be set to `E` (*error*), since no notification about the result of the transcoding has been received.

The execution frequency of the scheduled job is set in the property `intervalInDays` contained in the file `TranscodingJobDeleteScheduledTask.xml`.

Chapter 3. Installation and configuration

This section explains how to install and configure the OneMediaHub on your system from your distribution medium.

Due to the highly modular architecture of the OneMediaHub platform, there are many configuration parameters that the system needs in order to integrate all the different parts. Instead of providing a large and complex single configuration file, OneMediaHub configuration parameters are stored in small XML files organized in a tree structure under the file system. This allows easy look up of changes that need to be made and is an easy way to change the configuration of the servers: in fact all that is really needed is a text editor.

Note

OneMediaHub makes use of third-party software which may require their own configuration files. These files will also be described in the following sections.

In general, the OneMediaHub configuration is composed of:

- OneMediaHub configuration files
- Apache Tomcat (see [13]) configuration files
- JGroups (see [14]) configuration files
- log4j (see [15]) configuration files

3.1 Installing the OneMediaHub

Download the archive for the OneMediaHub on your server:

- `onemediahub-x.x.x.tgz`

and extract it in a directory of choice (for example: `/opt`) using the following command:

```
tar -xzvf onemediahub-x.x.x.tgz
```

Important

Take care to set appropriate file permissions for the files involved, so that the system user in charge to start the OneMediaHub server will be able to access them. For example, if the archive is extracted using the `root` user, without appropriate file permissions a user `funambol` will not be able to start all the needed processes or to access libraries.

Double check that the environment variable `JAVA_HOME` is properly set to the Java Development Kit (JDK) home. For example:

```
export JAVA_HOME=/opt/jdk1.7.0
```

Install the JDBC driver, by copying the `jar` file under

```
$JAVA_HOME/jre/lib/ext
```

3.2 The `config` directory

In OneMediaHub, all the configuration files for all components are stored under *`<root directory of your OneMediaHub installation>`*`/config`.

3.2.1 OneMediaHub configuration files

OneMediaHub configuration files are simple XML files that configure a specific aspect or component of the OneMediaHub system. The XML schema used by these files is flexible so that it is not necessary to change it even when a new set of configuration parameters is introduced. Together with this flexibility the syntax of the file is simple enough to be easily understood.

This is an example of a server JavaBean:

```
<?xml version="1.0" encoding="UTF-8"?>
<java version="1.4.1_01" class="java.beans.XMLDecoder">
 <object
 class="com.funambol.framework.server.store.PersistentStoreManager">
  <void property="jndiDataSourceName">
    <string>java:/jdbc/fnblds</string>
  </void>
  <void property="stores">
   <array class="java.lang.String" length="2">
     <void index="0">
      <string>com.funambol.server.store.SyncPersistentStore</string>
     </void>
     <void index="1">
      <string>com.funambol.server.store.EnginePersistentStore</string>
     </void>
   </array>
  </void>
 </object>
</java>
```

3.3 Quick configuration

OneMediaHub provides a way to quickly configure some of the most common settings through a single configuration file.

To quickly configure a OneMediaHub installation, go to the directory *`<root directory of your OneMediaHub installation>`*`/bin` and edit the file `config.properties`, customizing the properties listed in the table below to reflect your deployment:

Property	Description
`${api.baseurl}`	The base URL of the server API. Used by the AJAX UI as well. Default value is 'sapi'
`${customer.app.name}`	The application name used in the markets, such as App Store, Android Market or App World (use only printable characters)
`${customer.name.long}`	The extended name of the customer running the portal (use only printable characters)
`${customer.name.short}`	The short name of the customer (use only printable characters, no spaces)

Property	Description
`${ds.admin.password}`	User admin password
`${encryption.algorithm}`	The encryption algorithm's name (may be empty if encryption is disabled)
`${encryption.enabled}`	Use or not encryption for media files
`${encryption.salt}`	The encryption key for the algorithm defined above (may be empty if encryption is disabled)
`${ets.client-region}`	The Region where the AWS account has been created. It should be one of the following: `us-east-1`, `us-west-1`, `us-west-2`, `eu-west-1`, `ap-northeast-1`, `ap-southeast-1`, `ap-southeast-2`, `sa-east-1`
`${ets.pipeline-id}`	The pipeline identifier where your transcoding jobs will be added
`${ets.s3-container-name}`	The bucket name to be used on Amazon S3 (if the storage is S3, this bucket name should be the same as set in the property `${storage.container.name}`)
`${facebook.id}`	The "Application ID" of your Facebook application
`${facebook.secret}`	The "Secret" of your Facebook application
`${flickr.key}`	The "Key" of your Flickr application
`${flickr.secret}`	The "Secret" of your Flickr application
`${google-analytics.account}`	Google Analytics web property ID
`${jdbc.driver}`	The JDBC driver to use
`${jdbc.password}`	The database user password
`${jdbc.url}`	The URL to use in database connection. **Note** The JDBC URL must include the parameter specification `characterEncoding=UTF-8`; for example: `mysql://172.16.11.24/funambol?characterEncoding=UTF-8`
`${jdbc.user}`	The database user
`${limit.items}`	The max number of items that can be contained in a JSON array
`${mail.from}`	The mail address used as "from" in the sent Email
`${mail.smtp.auth}`	Whether the mail server requires authentication or not (`true` or `false`)
`${mail.smtp.host}`	Mail server host name
`${mail.smtp.password}`	Mail server user password

Property	Description
`${mail.smtp.port}`	Mail server port (e.g. `25`)
`${mail.smtp.ssl}`	Specifies if the SMTP server to be used requires SSL. Can be `true` or `false`
`${mail.smtp.user}`	Mail server user name
`${media.server}`	The storage provider domain for media and file
`${media.transcoding-service.enabled}`	Used for enabling/disabling the media transcoding
`${ota.account.name}`	Name of the sync profile created by the OTA configuration message (use only printable characters)
`${portal.server}`	Public `hostname:port` of the server (e.g. `my.server.com:80`) **Note** The specified URL must be exactly the same as the one used to access the service. Failure in doing so may cause errors in various phases including signup. If you need to support multiple servers see Section 3.13.2, “Supporting multiple server URL” for additional information.
`${quota.roles}`	The list of the available quota roles
`${quota.demo}`	The storage space quota for *Demo* users
`${quota.premiumplus}`	The storage space quota for *Premium Plus* users
`${quota.premium}`	The storage space quota for *Premium* users
`${quota.standard}`	The storage space quota for *Standard* users
`${quota.ultimate}`	The storage space quota for *Ultimate* users
`${sms.password}`	SMS provider user password
`${sms.sender}`	Name of the SMS sender (max 11 characters, use only printable characters)
`${sms.user}`	SMS provider user account
`${storage.container.name}`	The bucket name. If the storage provider is `filesystem`, there is no need this to be set. If the storage provider is `s3`, it must be configured with the bucket name to be used on Amazon S3
`${storage.credential}`	The secret key. To be set when the storage provider is Amazon S3; otherwise to be left empty
`${storage.identity}`	The access key. To be set when the storage provider is Amazon S3; otherwise to be left empty
`${storage.provider}`	The storage provider name. Values allowed: `filesystem` to use filesystem storage, or `s3` to use Amazon S3

Property	Description
`${subscription.enabled}`	Used for enabling/disabling the user subscriptions feature
`${twitter.key}`	The "Consumer Key" of your Twitter application
`${twitter.secret}`	The "Consumer Secret" of your Twitter application
`${udp.binding.addr}`	UDP traffic binding address (usually the local IP address of the server)
`${ws.server}`	The server host to be used use by the PIM Listener Service to call the web services exposed by the Data Synchronization Service
`${youtube.key}`	The "API Key" of your YouTube application
`${antivirus.enabled}`	Enable the antivirus service, default is `false`. For more information, see Section 3.24, “Antivirus service”

When done, run the command:

```
./configure-portal
```

Here is an example of the `config.properties` file for quick configuration:

```
${jdbc.user}=syncuser
${jdbc.password}=changeme

${jdbc.url}=jdbc:mysql://localhost/funambol?
characterEncoding=UTF-8&amp;connectTimeout=10000&amp;socketTimeout=60000

${jdbc.driver}=com.mysql.jdbc.Driver

${portal.server}=myserver.com
${ws.server}=localhost:8080

${ds.admin.password}=adminpass

${udp.binding.addr}=localhost

${sms.user}=sms
${sms.password}=smspwd
${sms.sender}=onemediahub

${mail.smtp.host}=smtp.gmail.com
${mail.smtp.port}=465
${mail.smtp.auth}=true
${mail.smtp.user}=user@server.com
${mail.smtp.password}=mypwd
${mail.from}=portal@server.com
${mail.smtp.ssl}=true

${customer.name.long}=Funambol
${customer.name.short}=Funambol
${customer.app.name}=OneMediaHub
```

```
${ota.account.name}=onemediahub

${api.baseurl}=sapi

${facebook.secret}=b28b383c51971112384422359b3at56
${facebook.id}=546540546197143
${flickr.key}=b128b383c19719112322412359b3at56
${flickr.secret}=546540546197143e
${youtube.key}=AI39si6KC1971QFGUa-
cL9HMsOKdJJ56h8fgdziY09jeF9ZkzRF501J0sJCCxcaCbazcxhW-
nfwW-5Gg3XbrsLX_UUYOHVaz4g
${twitter.key}=aa999b9cc19719
${twitter.secret}=82Z5VBtIZ1971kwCBLYrPbzIMx6NMxSddaLkys3MnUI

#
# Set it to 'filesystem' for on local file system or to's3' for on
 Amazon S3
#
${storage.provider}=filesystem

#
# Set it to the storage provider for media and file content
# (for instance media-container.s3.amazonaws.com)
#
# Using 'filesystem' this property can be empty
#
${media.server}=

#
# The following properties are not needed using 'filesystem'
#
#
# Set it to the bucket name using 's3'
# (for instance media-container)
#
${storage.container.name}=

${storage.identity}=AHHAISAPOB1
${storage.credential}=ixXaHH1TPLABIwWEaHyx

# The portal Mobile sign-up path
${portal.server.msupath}=m

# The available quota roles
${quota.roles}=demo,standard,premium,premiumplus,ultimate,noquota

# The storage space quotas
${quota.demo}=150M
${quota.standard}=1G
${quota.premium}=5G
${quota.premiumplus}=10G
${quota.ultimate}=50G

# The limit of items managed by JSON array
```

```
${limit.items}=15000

${encryption.enabled}=false
${encryption.algorithm}=AES128
${encryption.salt}=cGFzc1971mQ=

# Google Analytics UA ID
${google-analytics.account}=

${media.transcoding-service.enabled}=true
${ets.pipeline-id}=1135067402107-71a0b1
${ets.client-region}=us-west-1
${ets.s3-container-name}=container-playlist
```

Tip

In order to prevent to erroneously run the quick configuration, you can set the environment variable `FUNAMBOL_QUICK_CONFIGURATION_NOT_ALLOWED` to `true`. In this way, if you try to run the `configure-portal` command, a message saying that the quick configuration is not allowed is shown and the script exits.

Note

If you wish to further customize your OneMediaHub installation, the following sections provide detailed instructions for configuring the various components.

3.4 Database configuration

The OneMediaHub Portal requires a database (e.g. "funambol") and a user (e.g. "syncuser") that has select/insert/update/delete grants on the database tables. In the following sections, you will find instructions on how to create them using MySQL.

If you wish to use a partitioned database, refer to Chapter 6, *Database partitioning* for further details.

3.4.1 MySQL database creation

Here we will assume that MySQL has been installed successfully, is up and running, and is listening on port 3306 (default).

To enable the execution of scheduled events, the value of the MySQL global system variable `event_scheduler` must be set to `true`.

Since MySQL server can operate in different Server SQL Modes [10], the System Administrator confirms that the MySQL server is running with the default configuration or a not strict mode.

Warning

Since MySQL server can operate with ACID compliance or without ACID compliance for commit operations [11], the System Administrator confirms that the MySQL server is running without ACID compliance. So `innodb_flush_log_at_trx_commit` is either `0` or `2`. The default value for `innodb_flush_log_at_trx_commit` is not supported.

Below is a simple example on how to create the required user and database. You can run the following commands on the database server or on a different client machine; in this case, additional parameters (such as the hostname) could be required - see [5] for more details.

1. Create the database `funambol`:

   ```
   mysql -u root -e "create database funambol character set 'UTF8';"
   ```

2. Create the database user "syncuser":

   ```
   mysql -u root -e "create user syncuser identified by 'changeme';"
   ```

3. Grant all privileges on the database "funambol" to the user "syncuser":

   ```
   mysql -u root -e "grant all privileges on funambol.* to
    'syncuser'@'localhost' identified by 'changeme';"

   mysql -u root -e "flush privileges;"
   ```

4. Import the initial database data using UTF-8 encoding:

   ```
   mysql -h localhost -D funambol –u root --default_character_set utf8 <
   <root directory of your OneMediaHub installation>/portal/database/
   mysql/cared-mysql.sql
   ```

5. Limit user "syncuser"'s privileges:

   ```
   mysql -u root -e "revoke create, grant option, alter on funambol.*
    from syncuser@localhost;"
   ```

Security consideration

The aforementioned commands create tables and required objects using "syncuser" as the user. This is not a good practice in a production environment where the user used by the application should be different than the one used to create the database and the tables. You should use your own database (super)user to create the database, run the `cared-mysql.sql` script and then give select/insert/update/delete rights to "syncuser" and, in case of future patches containing SQL scripts, execute the scripts themselves. If your MySQL server is running on a different server from the OneMediaHub services, you need to grant remote access to "syncuser" (see MySQL Documentation for more details about user remote access.)

3.4.2 Further database configuration

OneMediaHub is configured to use the following values by default:

- host name: **localhost**

- database name: **funambol**

If a different configuration is required, update the following file:

- `<root directory of your OneMediaHub installation>/config/com/funambol/server/db/db.xml`

This is an example of the configuration file to use MySQL as database server running on `172.16.11.24`.

Note

The JDBC URL must include the parameter specification *characterEncoding=UTF-8*.

```
<?xml version="1.0" encoding="UTF-8"?>
<java version="1.6.0" class="java.beans.XMLDecoder">
 <object class="com.funambol.server.db.DataSourceConfiguration">
   <void method="setProperty">
    <string>username</string>
    <string>syncuser</string>
   </void>
   <void method="setProperty">
    <string>password</string>
    <string>changeme</string>
   </void>
   <void method="setProperty">
    <string>url</string>
    <string>jdbc:mysql://172.16.11.24/funambol?characterEncoding=UTF-8</
string>
   </void>
   <void method="setProperty">
    <string>driverClassName</string>
    <string>com.mysql.jdbc.Driver</string>
   </void>
 </object>
</java>
```

All the OneMediaHub components use the `db.xml` configuration file located in the `<`*root directory of your OneMediaHub installation*`>/config/com/funambol/server/db` directory; you can modify all the configuration parameters by editing this file.

The main parameters are:

Property	Description
`username`	The database user
`password`	The database user password
`url`	The URL to use in database connection
`driverClassName`	The JDBC driver to use

In addition, the following parameters can be set for advanced tuning:

Property	Description
`initialSize`	The initial number of connections that are created when the pool is started.
`maxActive`	The maximum number of active connections that can be allocated from this pool at any one time, or negative for no limit.
`maxIdle`	The maximum number of connections that can remain idle in the pool, without extra ones being released, or negative for no limit.

Property	Description
`minIdle`	The minimum number of connections that can remain idle in the pool, without extra ones being created, or zero to create none.
`maxWait`	The maximum number of milliseconds that the pool will wait (when there are no available connections) for a connection to be returned before throwing an exception, or -1 to wait indefinitely.
`connectionProperties`	The connection properties that will be sent to our JDBC driver when establishing new connections. The format of the string must be `[propertyName=property;]*` **Note** The `user` and `password` properties will be passed explicitly, so they do not need to be included here.

3.4.3 Limiting the maximum number of open connections

By default, the server can open a maximum number of 100 connections. Your database server will have difficulty with too many open connections, therefore you will need to increase the maximum number of connections allowed, or to change the OneMediaHub database configuration in order to reduce the number of connections used (see Section 3.4.2, “Further database configuration” for more information on the *`initialSize`*, *`maxActive`*, *`minIdle`* and *`maxIdle`* parameters).

Note

OneMediaHub uses a pool of connections, therefore having 100 connections open does not mean that the server is using all of them concurrently, but rather that almost all of them are idle and ready to be used.

In order to change the maximum number of connections allowed, refer to [9].

3.4.4 Database partitioning

OneMediaHub supports database partitioning; see Chapter 6, *Database partitioning* for further details.

3.4.5 MySQL events

To enable the execution of scheduled events, the value of the MySQL global system variable `event_scheduler` must be set to `true`.

The default value `INTERVAL_VALUE` in the `mysql.event` table is different according to the specific event, and can be tuned depending on the load of the given database (see [8]).

You can find more information about the *Event Scheduler* and MySQL events in the official database documentation (see [7]).

Event name	Description
`delete_monitor_used_storage`	Delete media storage information older than 30 days
`delete_old_client_download_stats`	Delete download statistics for the clients older than 60 days
`delete_old_contacts`	Delete contacts in status `D` since more than 30 days
`delete_old_events`	Delete events in status `D` since more than 30 days
`delete_old_fnbl_events`	Delete reporting events older than 7 days
`delete_old_folders`	Delete folders in status `D` since more than 30 days
`delete_old_history`	Delete synchronization activities older than 180 days
`delete_old_media`	Delete media items in status `D` since more than 30 days
`delete_old_notes`	Delete notes in status `D` since more than 30 days
`delete_old_notifications`	Delete undelivered push messages older than 7 days
`disable_pim_push_account`	Disable PIM push for users without a sync in the last 60 days

3.5 IPv6 Support

IPv6 clients are fully supported out-of-the-box without any change if OneMediaHub is installed on **IPv4 hosts** and if in front of the OneMediaHub server an IPv6 HTTP proxy or load balancer (like the Apache HTTP Server) is used, since in such configuration the proxy translates IPv6 addresses into IPv4 addresses.

Otherwise, if OneMediaHub is installed on **IPv6 hosts**, the scripts

`<`*`root directory of your OneMediaHub installation`*`>/bin/funambol-server`

`<`*`root directory of your OneMediaHub installation`*`>/bin/pim-listener`

must be changed by removing (or commenting out) the following line:

```
JAVA_OPTS="$JAVA_OPTS -Djava.net.preferIPv4Stack=true"
```

3.6 Adding new nodes to a OneMediaHub cluster

This section describes how to add new nodes in a OneMediaHub cluster. The sections cover the scenarios where only one service per box is deployed. If more than one service is deployed on a box, information in the different sections can be combined.

Warning

In a cluster environment, the directories where all media files belonging to the user are stored must be shared between all server nodes. See Section 2.6.1, “File system structure” for more details.

3.6.1 Adding a new Data Synchronization Service node to the cluster

To add a new node to the Data Synchronization Service cluster, simply install OneMediaHub on a new machine as explained in Section 3.1, “Installing the OneMediaHub” and configure the load balancer to make it aware of the new system.

3.6.2 Adding a new PIM Listener Service node to the cluster

To add a new node to the PIM Listener Services cluster just install OneMediaHub on a new machine as explained in Section 3.1, “Installing the OneMediaHub” and start the PIM Listener Service.

3.7 Data Synchronization Service configuration

Most of the configuration files are forged at build time and do not need to be changed at all. The following configuration files, found in the *<root directory of your OneMediaHub installation>/*`config` directory, are of interest to system administrators:

File	Description
`Funambol.xml`	This is the root of all Data Synchronization Service configuration files; see the dedicated section below for further details.
`com/funambol/server/sms/SMSProvider.xml`	Configuration file for the SMS service provider used to send SMSs. Out of the box, OneMediaHub uses SubitoSMS (see the section called “SMS Service”)
`com/funambol/server/notification/PIMPushSender.xml`	Push configuration file for SyncML devices which support PIM push.

3.7.1 `Funambol.xml`

This is the main Data Synchronization Service configuration file. It also serves as a directory of links to other configuration files for specific components. The properties contained in `Funambol.xml` are divided into two sections and generally do not require any changes.

Table 3.1. engineConfiguration

Property	Description
`officer`	Represents the component that controls how users are authenticated and granted access to the system.
`serverURI`	Specifies the URI to be used by the client when responding to server messages. Note that this value doesn't affect the URL or port used by the application server that runs the OneMediaHub application.
`sessionHandler`	Represents the component (instantiated using the contents of an XML file) that manages the synchronization session.
`strategy`	Represents the component that handles the synchronization process.
`userManager`	Represents the component that handles all the users.
`minMaxMsgSize`	This option specifies the minimum value to be used by the client for `MaxMsgSize`. This value is the maximum size that all messages sent by the server must have (specified by the SyncML protocol). If a client specifies a value for `MaxMsgSize` that is

Property	Description
	smaller than `minMaxMsgSize`, the server refuses the synchronization and will log an error.
`deviceInventory`	Represents the component that manages all the device records.
`dataTransformerManager`	Represents the component that allows you to customize the encryption applied to incoming and outgoing messages.
`checkForUpdates`	Enables the Data Synchronization Service to check the Funambol website daily for updates. [Active by default]

Warning

Be careful when applying changes to the properties in this section as it may result in the server malfunctioning.

Table 3.2. serverInfo

Property	Description
`man`	The manufacturer. [Default: 'funambol']
`mod`	The model. [Default: 'DS Server CarEd']
`oem`	The OEM. [Default: empty]
`fwV`	The firmware version. [Default: empty]
`hwV`	The hardware version. [Default: empty]
`swV`	The server version.
`devID`	The device ID. [Default: 'funambol']
`devType`	The device type. [Default: 'server']
`utc`	Does the server support UTC? [Default: 'yes']
`supportLargeObjs`	Does the server support large object? [Default: 'yes']
`supportNumberOfChanges`	Does the server support number of changes? [Default: 'yes']
`X-funambol-smartslow`	The server supports the smart slow sync that allows the OneMediaHub client Apps and the server to optimize traffic during slow syncs (present since v8.5)
`X-funambol-media-http-upload`	The server supports improved file data object synchronization: as pictures may be large and the bandwidth small, the server supports HTTP upload of media files (present since v8.7)
`X-funambol-msu`	The server supports mobile signup. If the property is not present, the latest OneMediaHub client Apps will not display the signup option (present since v9.0)

Note

> These options include all the settings that determine what is initially sent to the SyncML device or client, to describe important server characteristics.

3.8 PIM Listener Service configuration

Most of the configuration files are forged at build time and do not need to be changed at all. The following configuration files, found in the *`<root directory of your OneMediaHub installation>/`*`config` directory, are of interest to system administrators.

File	Description

`com/funambol/pimlistener/PIMListenerConfiguration.xml`	PIM Listener Service configuration file. The following sections should be updated:
	`<void property="serverInformation">`
	`<object`
	` class="com.funambol.server.admin.ws.client.ServerInformation">`
	` <void property="url">`
	` <string>http://server:port/funambol/services/admin</string>`
	` </void>`
	` <void property="username">`
	` <string>admin</string>`
	` </void>`
	` <void property="password">`
	` <string>password</string>`
	` </void>`
	`</object>`
	`</void>`
	For more see the section below.

`jgroups-pimlistener.xml`	JGroups configuration file used by the PIM Listener Service cluster. `bind_addr="${jgroups.udp.bind_addr.ctp-nofitication-group:192.168.1.15}"`

3.8.1 `PIMListenerConfiguration.xml`

This file contains the following configuration parameters.

Property	Description
`maxThreadPoolSize`	Specifies the maximum number of threads that can be used. This should be a function of the number of users to monitor.
`healthThreadPollingTime`	Sets the interval (in seconds) between executions of the `HealthThread`, a thread that assesses the PIM Listener Service status at regular intervals.

Property	Description
registryMonitorPollingTime	Sets the interval (in seconds) between RegistryMonitor executions, a thread that regularly checks the database for changes to monitored accounts.
taskPeriodTolerance	Sets the tolerance accepted on the period between two data checks. If a user is scheduled to be checked every x seconds (period), a warning is triggered if the data check occurs after x + periodTolerance/x.
registryTableName	Defines the table that contains the PIM Listener push registry entries. By default fnbl_push_listener_registry.
pluginDirectory	The directory from which the PIM Listener Service loads plug-ins.
serverInformation	Records the information used to call any webservices exposed by the Data Synchronization Service, as noted below: • url: the OneMediaHub engine administration URL • username: the OneMediaHub engine administrator username • password: the OneMediaHub engine administrator password
clusterConfiguration	Contains the information used to create a cluster between two or more PIM Listener Services.

3.9 Data Synchronization Service cluster configuration

Most of the configuration files are forged at build time and do not need to be changed at all. The following configuration files, found in the `<root directory of your OneMediaHub installation>/config` directory, are of interest to system administrators.

File	Description
jgroups-dsserver.xml	JGroups configuration file used by the Data Synchronization Service cluster cluster.bind_addr= "${jgroups.udp.bind_addr.ds-server- group:192.168.0.15}"

3.10 Enabling default users

Before starting for the first time the OneMediaHub services, it is mandatory to enable the default users and choose a password for them. These users are required for using the customer service representative (CSR) interface and running the OneMediaHub services. Any user available by default in OneMediaHub is disabled as a security measure.

To enable the default users, run the command: `<root directory of your OneMediaHub installation>/bin/enable-default-users`

To enable a single default user, run the command: `<root directory of your OneMediaHub installation>/bin/enable-default-users <userid>`

Note

The password of the default user 'admin' must be the same value of the property `${ds.admin.password}` in the file `<root directory of your OneMediaHub installation>/bin/config.properties`

3.11 Starting/stopping OneMediaHub services

This section describes how to start and stop the different OneMediaHub services.

Note

You can verify whether the server services started successfully by looking at the server logs; see Chapter 7, *Logging* for more information on logging.

The following table details which services can autonomously be started/stopped, the script to use, and the TCP ports involved:

OneMediaHub service	Script	TCP ports used
All services together	`<root directory of your OneMediaHub installation>/bin/funambol`	(all ports listed here below)
Data Synchronization Service	`<root directory of your OneMediaHub installation>/bin/funambol-server`	8005 (shutdown port) 8080 (connector port) 8101 (JMX port)
PIM Listener Service	`<root directory of your OneMediaHub installation>/bin/pim-listener`	3101 (JMX port)

Warning

You must not change the timezone settings in the `funambol-server` script. The Data Synchronization service must start in `GMT`. At the moment there is no chance to have this service working with a timezone different from `GMT`. This is because the current implementation expects the Java Virtual Machine running in `GMT`, since in handling different timezones a timezone to be used as reference is needed, and `GMT` is the most generic one.

When run, these scripts inform the user via a warning message if the default TCP ports are already in use. In this case, the start-up procedure is terminated.

This could mean that:

1. the service is already up and running (therefore ports are already used)
2. TCP ports are being used by another application

3.11.1 Starting/stopping all services together

To start all services together, go to the directory `<root directory of your OneMediaHub installation>/bin` and run the command:

```
./funambol start
```

To stop all the services, use the command:

```
./funambol stop
```

3.11.2 Starting/stopping the Data Synchronization service

To start the Data Synchronization service, go to the directory `<root directory of your OneMediaHub installation>/bin` and run the command:

```
./funambol-server start
```

To stop the service, use the command:

```
./funambol-server stop
```

3.11.3 Starting/stopping the PIM Listener service

To start the PIM Listener service, go to the directory `<root directory of your OneMediaHub installation>/bin` and run the command:

```
./pim-listener start
```

To stop the service, use the command:

```
./pim-listener stop
```

3.12 Portal configuration

Portal configuration files are stored under the root directory of your OneMediaHub installation. The table below lists the portal configuration files that a system administrator can be interested in changing.

File	Description
`tools/tomcat/conf/Catalina/localhost/ROOT.xml`	Mail session configuration file. Change the SMTP server settings according to system deployment. See below for details.
`config/portal/portal-ext.properties`	Main portal configuration file. See below for details.

3.12.1 Configuring the login with or without country code

The OneMediaHub can be configured to allow the users to login with or without the country code. When they registered with a phone number as username, the server should be configured in this way when all the users are from the same country (and share the same phone country code).

In order to configure the server to allow this type of login, a new property must be set into the file `<root directory of your OneMediaHub installation>/config/portal/portal-ext.properties`:

```
unique-country-code=49
```

In the example above, the value of the element `unique-country-code` (`49`) is the country code of Germany.

Warning

This feature should be configured before having users in the database. If there are already users in the database, those will not be able to login with or without country code, but only with the actual number used as username when they registered.

3.12.2 ROOT.xml

In order to be able to send Emails, the following mail service must be configured:

```
<root directory of your OneMediaHub installation>/tools/tomcat/conf/
Catalina/localhost/ROOT.xml
```

Edit the file and set appropriate values for the SMTP server of choice and the *from* address that should appear in the Emails. The parameters that need to be customized are highlighted in the following example:

```
<Resource name="mail/MailSession"
          auth="Container"
          type="javax.mail.Session"
          mail.smtp.host="${mail.smtp.host}"
          mail.smtp.auth="${mail.smtp.auth}"
          mail.smtp.user="${mail.smtp.user}"
          mail.smtp.password="${mail.smtp.password}"
          mail.smtp.port="${mail.smtp.port}"
          mail.smtp.debug="false"
          mail.from="${mail.from}"
          mail.smtp.starttls.enable="${mail.smtp.ssl}"
          mail.smtp.socketFactory.class="${mail.smtp.socketfactory}"
          mail.smtp.connectiontimeout="10000"
          mail.smtp.timeout="10000"
/>
```

Below is a practical customization example:

```
<Resource name="mail/MailSession"
          auth="Container"
          type="javax.mail.Session"
          mail.smtp.host="localhost"
          mail.smtp.auth="false"
          mail.smtp.user=""
          password=""
          mail.from="portal@funambol.com"
          mail.smtp.connectiontimeout="10000"
          mail.smtp.timeout="10000"
/>
```

This SMTP server is the same as the one specified in the Email account configuration.

The configuration parameters that must be specified for the SMTP server are:

- mail server (i.e., *`mail.smtp.host`*)
- whether it requires authentication or not (`mail.smtp.auth= ["true"/"false"]`)
- username (*`mail.smtp.user`*) and password (*`mail.smtp.password`*) that are used for all Email accounts registered in the table `fnbl_email_account` for authentication.

When a portal user registers a private Email account, the username and password combination for that SMTP server will be saved in `fnbl_email_account`, under the columns: `out_login` and `out_password`.

After these changes, you will need to restart the server; go to the directory `<`*`root directory of your OneMediaHub installation`*`>/bin` and run the command:

```
./funambol-server start
```

3.12.3 `portal-ext.properties`

Change the following properties in the file `<`*`root directory of your OneMediaHub installation`*`>/config/portal/portal-ext.properties`:

3.12.3.1 `sp.syncportal.messages.url` and `sp.syncportal.url`

Set the properties used to create the link in SMS and invitation mail:

```
# This property is used for the mail body and when
# an SMS message is sent

sp.syncportal.messages.url=<your-host>:<your-port>

...

# OneMediaHub Server URL

sp.syncportal.url=http://<your-host>:<your-port>
```

3.12.3.2 `admin.email.from.address` and `admin.email.from.name`

Set the properties used to send mail:

```
# Set signature (for example, 'The Funambol Team') and email address for
# registration, invitation and forgot password email

admin.email.from.address=<your-email-address>

admin.email.from.name=<your-email-signature>
```

3.12.3.3 `sp.mediaserver.url`

Set the property used to specify the storage provider URL for media and file content:

```
# This property is used to specify the storage provider for media and
# file content as they can be stored on a remote repository by default
# using the configure-portal is the same as portal URL

sp.mediaserver.url=http://<your-host>:<your-port>
```

3.12.3.4 sync.slow.min-interval

Set the minimum interval in minutes between two slow syncs for a specific principal:

```
# "-1" means always allowed,
# "never" means always rejected.
# If the engine rejects a slow sync, the status returned to the client
# is 407 - Retry

sync.slow.min-interval=-1
```

3.12.3.5 sync.blocked-sources

Set the list of sync sources a client should be prevented to sync against:

```
# List of sync source names blocked on this server, separeted by ","
# eg: card,cal,task
# The status returned to the client is 407 - Retry
# Note: Currently this does not block SAPI paths (picture, video, file,
# etc.)

sync.blocked-sources=cal
```

3.12.3.6 sync.min-interval

Set the minimum interval in minutes between two syncs (of any type) for a specific principal:

```
# minimum interval in minutes between a sync and another of any kind for
# a user, "-1" means always allowed, "never" means that the syncs are
# blocked at all

sync.min-interval=-1
```

3.12.3.7 sync.max-session-allowed

Set the maximum number of SyncML sessions allowed by the DS Server:

```
# maximum number of SyncML sessions allowed by the DS Server.
# "-1" means always allowed

sync.max-session-allowed=-1
```

3.12.3.8 sync.response-time-threshold

Set max allowed threshold in milliseconds for sync requests. If the average sync response time is higher than this threshold, all new sync sessions will be rejected until the average response time will be under the threshold. If the value of the property is empty, the threshold is not considered:

```
# Set max allowed threshold in milliseconds for sync requests.
# If the value of the property is empty, the threshold is not
# considered.

sync.response-time-threshold=
```

3.12.3.9 sp.syncportal.device.url.automaticRedirect, sp.syncportal.device.url.androidApp, sp.syncportal.device.url.iPhoneApp, and sp.syncportal.device.url.windowsPhoneApp

Set the properties to automatically download the proper mobile client:

```
# Automatic mobile download redirect
sp.syncportal.device.url.automaticRedirect=true

sp.syncportal.device.url.androidApp=<android_market_url>
sp.syncportal.device.url.iPhoneApp=<iphone_market_url>
sp.syncportal.device.url.windowsPhoneApp=<windowsphone_market_url>
```

If the property `sp.syncportal.device.url.automaticRedirect` is set to `false`, a download page is shown to the user and the other properties can be left empty.

3.12.3.10 sp.syncportal.url.download.page

Set the property to specify the download page URL. This is the URL that is sent to the user when the send-download-link Server API is called:

```
sp.syncportal.url.download.page=${sp.public.portal.url}/d
```

3.12.3.11 storage.provider, storage.identity, storage.credential and storage.container-name

```
#
# Set property to 'filesystem' for local file system or to 's3' for
# Amazon S3
#
storage.provider=
```

```
#
# Set properties with identity and credential specific for the storage.
# They are not needed when using 'filesystem' as provider.
#
storage.identity=
storage.credential=
```

```
#
# Set property to the container name on S3; leave it empty if the
# storage provider is file system
#
storage.container-name=
```

3.12.3.12 ets.pipeline-id, ets.client-region and ets.s3-container-name

```
#
```

```
# Set the pipeline identifier and the Region's name (it should be one
# of the following: us-east-1, us-west-1, us-west-2, eu-west-1,
# ap-northeast-1, ap-southeast-1, ap-southeast-2, sa-east-1) where
# the pipeline has been created.
# Set the S3 bucket where to store the transcoded media.
# This property must be set both in the case the storage is S3
# and file system.
# In case the storage is S3, this bucket should be the same set
# in the property storage.container-name
#
ets.pipeline-id=
ets.client-region=
ets.s3-container-name=
```

3.12.3.13 `audio.enabled`

```
#
# Set the property audio.enabled to true for enabling the music feature.
# Otherwise the music items will be managed as file and no metadata
# will be stored into db.
#
audio.enabled=true
```

3.12.3.14 `passwords.toolkit` and `passwords.regexptoolkit.pattern`

This property indicates which Password Toolkit will be used to validate user passwords. Default toolkit is `RegExpToolkit`, which is configurable with a regular expression (see below) to validate the password. A custom toolkit can be used as well. To use a custom password validator, provide a class that extends the Liferay `BasicToolkit` abstract class and put in the system classpath.

```
# Input a class name that extends
# com.liferay.portal.security.pwd.BasicToolkit. This class will be
 called to
# generate and validate passwords.
#
passwords.toolkit=com.liferay.portal.security.pwd.RegExpToolkit
```

```
# If you choose to use com.liferay.portal.security.pwd.RegExpToolkit as
# your password toolkit, set the regular expression pattern that will be
# used to generate and validate passwords.
#
# Note that \ is replaced with \\ to work in Java.
#
# default only letters (a-z, A-Z) or numbers (0-9) or dash and they
# must be at least 4 characters and at most 16 characters long.
#
passwords.regexptoolkit.pattern=^[\\w\\d\\-]{4,16}$
```

3.12.3.15 `passwords.allow.username`

This property indicates if the username is allowed to be part of the password. If the property is set to `false`, any possible occurrence of the username within the password will not be accepted by the system.

```
# Allow that the username appears in the password.
passwords.allow.username=true
```

3.12.3.16 `push.apple.keystore.file`, `push.apple.keystore.password`, `push.apple.production` and `push.apple.connection-pool-size`

These properties configure the apple push notification services.

```
# Set property to the name of the file containing the key used for
 authenticating the
# server with the Apple Push Server. The file has to be placed in the
 config directory
push.apple.keystore.file=push_keystore_file.p12

# Set property to the password used for protecting the key store file
push.apple.keystore.password=password

# Set property to false if the sandbox Apple Push Server should be used
push.apple.production=true

# Set property to the number of threads to be reserved for connections
 to the Apple Push Server
push.apple.connection-pool-size=1
```

3.12.3.17 `subscription.enabled`

Set the property to `true` for enabling the user subscriptions feature.

3.12.3.18 `subscription.warning-before-renewal-in-minutes`, `subscription.insufficient-funds-delay-in-minutes`, `subscription.service-error-delay-in-minutes`, `subscription.deletion-delay-in-minutes`, `subscription.keep-trying-to-charge-in-minutes`, `subscription.allow-downgrade-overquota`, `subscription.allow-immediate-downgrade`

Set the properties according to the requirements of the subscription strategy.

Set the property `subscription.warning-before-renewal-in-minutes` for specifying the delay in minutes of the notification warning sent before the renewal of the current user's subscription plan.

Set the property `subscription.insufficient-funds-delay-in-minutes` for specifying the delay in minutes for which payment has failed because of insufficient funds.

Set the property `subscription.service-error-delay-in-minutes` for specifying the delay in minutes for the retry in case the payment service is not reachable.

Set the property `subscription.deletion-delay-in-minutes` for specifying the delay in minutes for the deletion of the subscription plan.

Set the property `subscription.keep-trying-to-charge-in-minutes` with the time for keeping trying to charge.

Set the property `subscription.allow-downgrade-overquota` to enable the downgrade of a subscription without checking the quota of the user.

Set the property `subscription.allow-immediate-downgrade` to enable the immediate downgrade of subscription without waiting the termination of the old (greater) one.

3.12.3.19 `subscription.notification-sender-class`, `subscription.notification-builder-class`, `subscription.payment-service-class`, `subscription.manager-class`, `subscription.currency`

Set the properties for specifying the Java classes that implements *Notification Sender*, *Notification Builder*, *Payment Service*, *Subscription Manager*, and *Currency* to be used by the subscription engine.

3.12.3.20 `subscription.payment.web`

Set the URL that will be used to trigger the payments.

3.12.3.21 `subscription.paymentverifier.apple.sandbox`

Set the property to `true` for using the Apple sandbox (i.e. `https://sandbox.itunes.apple.com/verifyReceipt`) to verify payments, otherwise `https://buy.itunes.apple.com/verifyReceipt` will be used.

3.12.3.22 `subscription.paymentverifier.web.validationurl`

Set the server URL that will be used to verify payments.

3.12.3.23 `media.account-pre-population`

This property allows the administrator to specify a certain number of files that should appear in the user account when the user first logs in. These files can be of any of the supported types: videos, pictures, audio, or generic files.

Configuration

This feature can be enabled by setting the property `media.account-pre-population` in `<`*`root directory of your OneMediaHub installation`*`>/config/portal.properties` to `true`, and the files to be added to the user's account have to be placed in the `<`*`root directory of your OneMediaHub installation`*`>/default-media` directory. The files placed here will appear in the user's account.

Requirements

The videos used for the account pre-population should be already transcoded in a format that can be played in the browsers, e.g. encoded in MPEG4.

Note

The thumbnails for pictures and videos are created only once and cached for future usage, and when Amazon S3 is used as the backend the files are copied to Amazon S3 once and for each new user they are simply copied inside Amazon S3.

When encryption is enabled and Amazon S3 is used as storage provider, each file will be encrypted and uploaded to Amazon S3 when the user signs-up. For this reason the amount of files should be limited in this scenario.

3.12.3.24 `ui.media.upload-file-size-limit` and `ui.media.multiple-upload-size-limit`

Set the maximum limit for one or for multiple media upload operations:

```
# Size limit for one media upload operation
```

```
ui.media.upload-file-size-limit=2GB

# Size limit for a media upload operation of a set of files
ui.media.multiple-upload-size-limit=2GB
```

3.12.3.25 `sapi.upload.max-concurrent-uploads`

Define the maximum number of concurrent uploads this server instance can handle.

Note

Default value is `-1`, which allows all upload requests.

3.12.3.26 `sapi.upload.danger-zone.concurrent-uploads`

Define the threshold at which the server enters the danger zone for concurrent uploads.

Note

Default value is `-1`, which allows all upload requests.

3.12.3.27 `sapi.upload.danger-zone.device.max-concurrent-uploads`

Define the maximum number of concurrent uploads a single device is allowed to perform while the server is in danger zone mode.

Note

Default value is `-1`, which allows all upload requests.

3.12.3.28 `user-import-tool.device.countrya2`, `user-import-tool.device.carrierid` and `user-import-tool.device.modelid`

Set the device properties for the default device when provisioning users with the import users tool:

```
# Country A2 code used by the user import tool when inserting a new
 device to a user
user-import-tool.device.countrya2=

# Carrier identifier used by the user import tool when inserting a new
 device to a user
user-import-tool.device.carrierid=

# Model identifier used by the user import tool when inserting a new
 device to a user
user-import-tool.device.modelid=
```

3.12.3.29 `user-communication.default-channel`

Set the default communication channel to contact users. Possible values are "`email`" and "`sms`".

```
# Default communication channel for sending user notifications
user-communication.default-channel=email
```

3.12.3.30 `sapi.login.persistent-login-token-max-age-in-days`

Set the maximum age for the persistent login token, returned to the HTTP client as a cookie, when requested.

```
# Defines the persistent login token maximum age, in days
sapi.login.persistent-login-token-max-age-in-days=90
```

3.12.3.31 `sharing.email-counter.max-messages`

Set the max number of sharing Email messages a user can send.

```
# set the max number of sharing email a user can send
sharing.email-counter.max-messages=100
```

3.12.4 Restricting access to administrative Server API calls

It is possible to limit the access to administrative Server API calls to specific IP addresses by setting the `sapi.admin.allowedips` property in the `portal-ext.property` file. The property must be set to a comma-separated list of IP addresses or IP address masks. Three different types of masks are allowed:

- simple IP addresses (e.g. `123.12.34.56,123.12.34.60`)
- IP addresses containing the * wildcard (e.g. `123.12.34.*`)
- range of IP addresses (e.g. `123.12.34.1-123.12.34.100`)

When a request from an administrative account is performed, the IP address from which the request is made is compared with the allowed IP addresses. If the IP address matches one of the allowed IP addresses, the request is accepted; otherwise, an HTTP status code 401 (unauthorized) is returned and the SAPI call is not executed.

Warning

The default value of the `sapi.admin.allowedips` property is `127.0.0.1`, which means that administrative Server API calls are allowed from `localhost` only. Removing the property from the file has the same effect as setting it to `*.*.*.*`, i.e. allowing calls from any IP address.

Note

If OneMediaHub is running behind a load balancer (for example, ELB from Amazon Web Services), the default remote IP addresses in Tomcat are going to be the ones of the load balancer itself, as it's not trusted by Tomcat out of the box. To identify the latest IP before the load balancer and restrict access to administrative Server API calls, the following valve should be enabled in the file `<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/conf/server.xml`:

```
<!-- The request FunambolRemoteIpValve valve helps in having the
 remote IP address of a user when the service is running behind a
 Load Balancer that does not provide a static list of IP address,
 for example the ELB from AWS.
The standard RemoteIpValve of Tomcat relies on a list of IP
 addresses or ranges, the FunambolRemoteIpValve drops the last IP
 address from the LB only.
-->

<!--
<Valve
 className="org.apache.catalina.valves.FunambolRemoteIpValve"
 internalProxies=""remoteIpHeader="x-forwarded-for"
 remoteIpProxiesHeader="x-forwarded-by" trustedProxies=""/>
-->
```

3.12.5 How to configure the OAuth 2.0 client

In order to configure the HTTP OAuth 2.0 client change the following properties in the file *`<root directory of your OneMediaHub installation>`*`/config/portal/portal-ext.properties`:

```
# generic configuration of the http oauth client
# (timeout and max connection)
oauth.http-client.connection-timeout-in-seconds=30
oauth.http-client.max-total-connections=10

# web app and officer configuration
# URL of the login page
oauth.authorize.code.url=
#oauth.authorize.code.url=https://accounts.google.com/o/oauth2/auth

# URL to get the oauth access and refresh tokens (aka oauth tokens)
oauth.access.token.url=
# oauth.access.token.url=https://accounts.google.com/o/oauth2/token

# URL to refresh the oauth tokens
oauth.refresh.token.url=
# oauth.refresh.token.url=https://accounts.google.com/o/oauth2/token

# URL to get the user info
# (e.g. unique identifier, first name, last name....)
oauth.user.info.url=
# oauth.user.info.url=https://www.googleapis.com/oauth2/v3/userinfo

# unique identifier label in the oAuth server that will be
# used also in the OMH server
# this makes the feature more flexible because
# it could depend on the oAuth server implementation
oauth.user.info.id.mapping=

# URL that the web app will use to open the OMH main page
# this has been added in order to increase the security
# of the system in fact the back end can use it to
# validate the URL send by the web app; this is a OMH URL
# and it doesn't depend on oauth server
oauth.response.redirect.url=

# URL that the web app will use to open the error page
# this has been added in order to increase the security
# of the system in fact the back end can use it to
# validate the URL send by the web app; this is a OMH URL
# and it doesn't depend on oauth server
oauth.response.redirect-error.url=

# URL that the web app client will use in case of error
# during the authentication flow; this is a OMH URL
# and it doesn't depend on oauth server
oauth.client.web.logout.redirect.url=

# logout URL to invalidate the tokens on the oauth server
oauth.client.web.logout.url=
#oauth.client.web.logout.url=https://accounts.google.com/logout

# property to control the set of resources and operations
# that an access token permits
# it could depend on the oAuth server implementation
oauth.client.web.scope=
#oauth.client.web.scope=profile


# this section has the keys of the client apps
# since the Officer component will impersonate the apps
# this info depends on the oauth server side
#
# these are the 3 main parameters of the web app;
oauth.client.web.id=
oauth.client.web.secret=
oauth.client.web.redirect.url=

# windows PC
oauth.client.windows.id=
oauth.client.windows.secret=
oauth.client.windows.redirect.url=urn:ietf:wg:oauth:2.0:oob

# mac
oauth.client.macos.id=
oauth.client.macos.secret=
oauth.client.macos.redirect.url=urn:ietf:wg:oauth:2.0:oob

# android
oauth.client.android.id=
oauth.client.android.secret=
oauth.client.android.redirect.url=urn:ietf:wg:oauth:2.0:oob

# ios
oauth.client.ios.id=
oauth.client.ios.secret=
oauth.client.ios.redirect.url=urn:ietf:wg:oauth:2.0:oob

# blackberry
oauth.client.bb.id=
oauth.client.bb.secret=
oauth.client.bb.redirect.url=urn:ietf:wg:oauth:2.0:oob

# windows phone
oauth.client.winph.id=
oauth.client.winph.secret=
oauth.client.winph.redirect.url=

# This section configures the custom ssl context for oauth client
 connections,
# this custom context will be used when all properties are configured
#
# Location of the keystore file to be used by the OAUTH requests
oauth.keystore.file=
# Keystore password to be used by the OAUTH requests
oauth.keystore.password=
# Location of the truststore file to be used by the OAUTH requests
oauth.truststore.file=
# Truststore password to be used by the OAUTH requests
oauth.truststore.password=
```

3.12.6 How to enable user subscriptions

If you want to enable the user subscriptions, follow these steps:

1. Set the property `subscription.enabled` to `true` in the configuration file `<`*`root directory of your OneMediaHub installation`*`>/config/portal/portal-ext.properties`

2. Set all the other properties with prefix `subscription.` according to your subscription strategy (see Section 3.12.3, “`portal-ext.properties`”)

3. To enable the task for renewing subscriptions, edit the configuration file `<`*`root directory of your OneMediaHub installation`*`>/config/com/funambol/server/plugin/SubscriptionRenewalTask.xml` setting the `enabled` property to `true`

```
<?xml version="1.0" encoding="UTF-8"?>
<java class="java.beans.XMLDecoder" version="1.5.0_11">
  <object
 class="com.funambol.subscriptions.tasks.SubscriptionRenewalTask">
    <void property="enabled">
      <boolean>true</boolean>
    </void>
    <void property="intervalInMs">
      <long>600000</long>
    </void>
    <void property="maximumNumberOfItems">
      <int>100</int>
    </void>
  </object>
```

```
</java>
```

4. To enable the task for migrating users from a subscription plan to another, edit the configuration file `<`*`root directory of your OneMediaHub installation`*`>/config/com/funambol/server/plugin/SubscriptionMigrationTask.xml` setting the `enabled` property to `true`

```
<?xml version="1.0" encoding="UTF-8"?>
<java class="java.beans.XMLDecoder" version="1.5.0_11">
  <object
 class="com.funambol.subscriptions.tasks.SubscriptionMigrationTask">
    <void property="enabled">
      <boolean>true</boolean>
    </void>
    <void property="intervalInMs">
      <long>600000</long>
    </void>
    <void property="maximumNumberOfItems">
      <int>100</int>
    </void>
  </object>
</java>
```

5. To enable the task for deleting a user subscription, edit the configuration file `<`*`root directory of your OneMediaHub installation`*`>/config/com/funambol/server/plugin/AccountTerminationTask.xml` setting the `enabled` property to `true`

```
<?xml version="1.0" encoding="UTF-8"?>
<java class="java.beans.XMLDecoder" version="1.5.0_11">
  <object
 class="com.funambol.subscriptions.tasks.AccountTerminationTask">
    <void property="enabled">
      <boolean>true</boolean>
    </void>
    <void property="intervalInMs">
      <long>600000</long>
    </void>
    <void property="maximumNumberOfItems">
      <int>100</int>
    </void>
  </object>
</java>
```

6. To enable the task for verifying if the payment has been done by a user, edit the configuration file `<`*`root directory of your OneMediaHub installation`*`>/config/com/funambol/server/plugin/PaymentVerificationTask.xml` setting the `enabled` property to `true`

```
<?xml version="1.0" encoding="UTF-8"?>
<java class="java.beans.XMLDecoder" version="1.5.0_11">
  <object
 class="com.funambol.subscriptions.tasks.PaymentVerificationTask">
    <void property="enabled">
      <boolean>true</boolean>
    </void>
    <void property="intervalInMs">
      <long>600000</long>
    </void>
  </object>
</java>
```

3.12.7 How to view and edit current subscription plans

The set of the currently available subscription plans is retrievable and editable in the database, as per table described at Section E.1.38, “fnbl_subscription_plan”.

3.12.8 How to enable user validation in Mobile signup

During the signup phase it is possible to validate the user by setting in a proper way the property `sp.syncportal.mobilesignup.validation`.

If it is empty, no user validation will be performed.

If it is set to `sms`, an SMS with the activation link is sent to the phone number specified by the user.

If it is set to `captcha`, the user is validated by checking the captcha code.

A CAPTCHA image is displayed by default to the new user during the mobile signup. To remove the CAPTCHA, the `sp.syncportal.mobilesignup.validation property` should be changed to `sms` or let empty. The CAPTCHA will not be displayed to mobile clients and during in-browser signup.

To edit the CAPTCHA image (number of characters, complexity), the following fragment should be modified in the <*root directory of your OneMediaHub installation*>/tools/tomcat/webapps/ROOT/web-inf/web.xml file. For more information on valid configurations, refer to [27].

```
<servlet>
    <servlet-name>MobileCaptcha</servlet-name>
    <servlet-class>nl.captcha.servlet.CaptchaServlet</servlet-class>

    <init-param>
        <param-name>cap.font.arr</param-name>
        <param-value>Courier</param-value>
    </init-param>

    <init-param>
        <param-name>cap.char.arr</param-name>
        <param-value>2,3,4,8,9</param-value>
    </init-param>

    <init-param>
        <param-name>cap.char.arr.l</param-name>
        <param-value>4</param-value>
    </init-param>

</servlet>
```

3.12.9 How to enable user validation in Portal signup

During the signup phase it is possible to validate the user by setting in a proper way the property `sp.syncportal.signup.validation`.

If it is empty, no user validation will be performed.

If it is set to `sms`, an SMS with the activation link is sent to the phone number specified by the user.

If it is set to `captcha`, the user is validated by checking the captcha code.

A CAPTCHA image is displayed by default to the new user during the portal signup. To remove the CAPTCHA, the `sp.syncportal.signup.validation property` should be changed to `sms` or let empty. The CAPTCHA on the signup page will then be ignored by the Server API and can accordingly be removed from the AJAX signup page.

To edit the CAPTCHA image (number of characters, complexity), the following fragment should be modified in the `<`*root directory of your OneMediaHub installation*`>/tools/tomcat/webapps/ROOT/web-inf/web.xml` file. For more information on valid configurations, refer to [27].

```
<servlet>
    <servlet-name>Captcha</servlet-name>
    <servlet-class>nl.captcha.servlet.CaptchaServlet</servlet-class>

    <init-param>
        <param-name>cap.font.arr</param-name>
        <param-value>Courier</param-value>
    </init-param>

    <init-param>
        <param-name>cap.char.arr</param-name>
        <param-value>2,3,4,8,9</param-value>
    </init-param>

    <init-param>
        <param-name>cap.char.arr.l</param-name>
        <param-value>4</param-value>
    </init-param>

</servlet>
```

3.12.10 How to enable gzip compression

Gzip compression is used on the AJAX user interface to lower the amount of data sent to browsers that support this type of compression as per RFC 2616 (see [19]).

Note

All modern browsers and all browsers supported by OneMediaHub handle zip compression.

Running an Apache server is mandatory in order to take advantage of gzip compression with OneMediaHub. To configure it, follow these steps:

1. Open the Apache `httpd.conf` configuration file

2. Check that the module `rewrite` is loaded:

```
LoadModule rewrite_module modules/mod_rewrite.so
```

3. After the `DefaultType`, add the content type and encoding for `jgz` and `cgz`:

   ```
   AddType text/javascript .jgz

   AddEncoding gzip .jgz

   AddType text/css .cgz

   AddEncoding gzip .cgz
   ```

4. Add the following rules to the `VirtualHost` section:

   ```
   RewriteEngine on
   RewriteCond %{HTTP:Accept-Encoding} gzip
   RewriteRule (.*)-single\.js$ $1\-single.js.jgz [PT]
   RewriteCond %{HTTP:Accept-Encoding} gzip
   RewriteRule (.*)-single\.css$ $1\-single.css.cgz [PT]
   RewriteCond %{HTTP:Accept-Encoding} gzip
   RewriteRule (.*)portal-([a-z-]+)\.js$ $1\portal-$2.js.jgz [PT]
   ```

To test that gzip compression is correctly configured and is working you can:

- Add logs to the Apache server:

  ```
  RewriteLog /tmp/rewrite.log

  RewriteLogLevel 2
  ```

  Note

  According to Apache documentation, using a high value for `RewriteLogLevel` will slow down your Apache server dramatically. Remove it once the testing is over.

- Check response headers using a tool for Firefox such as Firebug. If the `Content-Encoding` is `"gzip"`, the response from Apache is compressed using `gzip`. Or, you can use `wget`/`curl` with a list of URLs.

3.12.11 How to configure the disk quota for media

The media sync sources (*picture*, *video*, and *file*) are used to store pictures, videos, and other files on the server's file system (see Section 2.6.1, “File system structure”).

The disk quota assigned to each user depends on the user role. Once a user has reached the limit, they cannot upload any more files. By default there are five roles for which a specific quota is assigned.

See the table below for the corresponding disk quota assigned to each role.

Role	Role Description	Quota
demo	Demo user	`150M`
standard	Standard user	`1G`
premium	Premium user	`5G`
premiumplus	Premium Plus user	`10G`
ultimate	Ultimate user	`50G`

Therefore a 'Premium' user can upload up to 5 GB of media.

Note

Thumbnails and other information generated by the OneMediaHub server and stored on the file system in the `-ext` subdirectories (see Section 2.6.2, “`-ext` subdirectories”) are not considered when computing the user quota, even though they use some disk space.

New users is assigned the 'standard' role by default. The default role assigned to each new user can be changed by modifying the *UserManager* configuration. If you want to change the default role, follow these steps:

1. Open the file `CaredUserManager.xml` found in the directory:

   `<root directory of your OneMediaHub installation>``/config/com/funambol/server/admin`

2. Locate the `defaultRoles` property

3. Change the default value `standard` with one of the following: `demo`, `premium`, `premiumplus`, `ultimate`.

For example:

```
<void property="defaultRoles">
  <array class="java.lang.String" length="1">
    <void index="0">
      <string>demo</string>
    </void>
  </array>
</void>
```

In `CaredUserManager.xml` there is also a `mandatoryRoles` property, defining the 'sync_user' role as mandatory. Users who want to sync must have the 'sync_user' role. The 'sync_user' role is therefore configured as mandatory and assigned by default to each new user. This configuration should not be changed.

The maximum file system quota assigned to each role can be changed by modifying the file `portal-ext.properties`.

To change the quota, follow these steps:

1. Open the file `portal-ext.properties` found in the directory: *`<root directory of your OneMediaHub installation>`*`/config/portal/`

2. Locate the `quota.roles` property. Here are all the allowed quota roles for the users.

3. Locate the role for which you want to change the quota.

4. Change the default value (expressed in bytes)

For example, if you want to change the quota assigned to the 'standard' role to 10 MB:

```
..
quota.standard=10M
..
```

Note

The value for the quota may be followed by 'M' if it is expressed in MB or 'G' if it is expressed in GB. For example: `100M` stands for '100 Megabytes'; `2G` stands for '2 Gigabytes'.

3.12.12 How to configure quota notification

Users may receive a notification whenever their occupied storage quota exceeds a configurable percentage. Notifications are disabled by default - to enable them, set the following properties in the file `portal-ext.properties`:

```
quota.notification.enabled=true
quota.notification.percentage=80
quota.notification.sender-
class=com.funambol.portal.quota.SMSNotificationSender
```

The property `quota.notification.percentage` defines the quota threshold in %.

Users will receive an SMS with the contents of the template `quota_percentage_reached_notification.txt` under `<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/webapps/ROOT/template/sms/`.

3.12.13 How to configure the Portal to store items on the local file system

Note

If you want to serve media files and thumbnails stored on the file system using the Apache web server in order to reduce the load on the application server, refer to Section 3.12.14, “Serving media files using the Apache web server” here below.

3.12.13.1 How to configure the Portal to store media on the local file system

By default the Portal stores media items (pictures, videos, music and files) on the server's local file system. If you wish to change the path where the files are stored, follow these steps:

1. Open the configuration file `<`*`root directory of your OneMediaHub installation`*`>/config/portal/portal-ext.properties`

2. Change the value of the `storage.filesystem-path` property from `../../../ds-server/db` to the new path:

   ```
   storage.filesystem-path=../../../ds-server/db
   ```

3. Change the symbolic link `<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/webapps/ROOT/picture`:

   `rm <`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/webapps/ROOT/picture`

   `ln -s path_to_the_storage_file_system_root_path <`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/webapps/ROOT/picture`

4. Change the symbolic link `<root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/file`:

   ```
   rm <root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/file
   ```

   ```
   ln -s path_to_the_storage_file_system_root_path <root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/file
   ```

5. Change the symbolic link `<root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/video`:

   ```
   rm <root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/video
   ```

   ```
   ln -s path_to_the_storage_file_system_root_path <root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/video
   ```

In fact, the root path from which the user's nested directories are created is given by the concatenation of the `storage.filesystem-path` the media source type, e.g. `../../../ds-server/db/picture`

3.12.14 Serving media files using the Apache web server

Media files and thumbnails are stored on the file system (see Section 2.6.1, “File system structure”) and serving them using the Apache web server reduces the load on the application server.

Warning

Serving the files using the Apache web server also avoids *remote code execution* vulnerabilities. This is therefore mandatory if files are stored on the local file system.

The `Content-Disposition` header should be set in the response to support the download of the file and set a different filename for the picture, video, or file items. This step is not required if the media files are stored on Amazon S3. To configure it, follow these steps:

1. Open the Apache `httpd.conf` configuration file

2. Check that the module `rewrite` is loaded:

   ```
   LoadModule rewrite_module modules/mod_rewrite.so
   ```

3. Add the following rules to the `VirtualHost` section:

   ```
   Alias /picture <root directory of your OneMediaHub installation>/ds-server/db/picture
   Alias /video <root directory of your OneMediaHub installation>/ds-server/db/video
   Alias /file <root directory of your OneMediaHub installation>/ds-server/db/file

   RewriteCond %{QUERY_STRING} (^|&)filename=([^&]*)

   RewriteRule .* - [E=FILENAME:%2]
   ```

```
Header set "Content-disposition" "attachment; filename=%{FILENAME}e"
 env=FILENAME

UnsetEnv FILENAME
```

4. Add the following directives at the end of `<HTTPD>/conf/omh-modcluster.conf`:

```
ProxyPassMatch ^/picture !
ProxyPassMatch ^/video !
ProxyPassMatch ^/file !
```

To test that serving pictures with Apache is correctly configured you can:

- Add logs to the Apache server:

```
RewriteLog /tmp/rewrite.log

RewriteLogLevel 2
```

Warning

According to Apache documentation, using a high value for `RewriteLogLevel` will slow down your Apache server dramatically. Remove it once testing is over.

- Try to download a picture or a video from the Portal user interface and check response headers using a tool for Firefox such as Firebug. If the `Content-Disposition` is set with the correct filename, the configuration is working.

Important

Be sure to disable autoindex for the media files. You can simply do it disabling mod_autoindex in your httpd installation commenting the following line in your httpd configuration file:

```
LoadModule autoindex_module modules/mod_autoindex.so
```

3.12.15 How to configure the Portal to store items on an online file storage provider

3.12.15.1 How to configure the Portal to store Media items on an online file storage provider

If you wish to store media files (pictures, videos, music and files) on an online storage provider, follow these steps:

1. Open the configuration file *`<root directory of your OneMediaHub installation>/`*`config/portal/porta-ext.properties`

2. Change the value of the `storage.provider` property from `filesystem` to `s3`:

```
#
# Set it to 'filesystem' for local file system or to 's3' for Amazon
 S3
```

```
#
storage.provider=s3
```

3. Assign a value to the `storage.container-name` property: note that this property is not present when using the filesystem as storage provider, so it is possible that you need to add it. The value should be the container name assigned to the customer (e.g. `fdo-container-funambol`):

   ```
   storage.container-name=fdo-container-funambol
   ```

4. Add the value provided by your storage provider to the `storage.identity` property:

   ```
   #
   # Set properties with identity and credential specific for the
    storage.
   # They are not needed using 'filesystem' provider.
   #
   storage.identity=68E6NMRPOF673B4R09FN
   ```

5. Add the value provided by your storage provider to the `storage.credential` property:

   ```
   storage.credential=hgG56ds7JGHJDF5T65G6gU77h8JHUT6gj78N45dh7iIU
   ```

6. Change the value of the `sp.mediaserver.url` property from `http://<your#host>:<your-port>` to `http://<container-name>.s3.amazonaws.com`, where `<container-name>` is the container name chosen by the customer and unique to Amazon S3, e.g. `http://fdo#container-funambol.s3.amazonaws.com`. The container must be created in advance and must already be present on the provider before the Portal can start using it:

   ```
   sp.mediaserver.url=http://fdo-container#funambol.s3.amazonaws.com
   ```

7. Change the value of the `sapi.picture.path` property from `picture` to empty:

   ```
   sapi.picture.path=
   ```

8. Change the value of the `sapi.video.path` property from `video` to empty:

   ```
   sapi.video.path=
   ```

9. Change the value of the `sapi.file.path` property from `file` to empty:

   ```
   sapi.file.path=
   ```

3.12.16 How to configure the max item size allowed by the DS Server

3.12.16.1 How to configure the max picture size allowed by the DS Server

The DS Server allows pictures coming from a client or as result of an API call with a size limit. This limit is configurable and is set by default to 2 GB.

To change the size limit, edit the picture sync source configuration file *`<root directory of your OneMediaHub installation>`*`/config/foundation/foundation/fdo#foundation/PictureSource.xml` and modify the value of the `maxSize` property:

```
<void property="maxSize">
  <string>250M</string>
</void>
```

Note

For the upload via Portal user interface this limit is the same (2 GB) and is configurable, but the maximum value guaranteed is 2 GB.

3.12.16.2 How to configure the max video size allowed by the DS Server

The DS Server allows videos coming from a client or as result of an API call with a size limit. This limit is configurable and is set by default to 2 GB.

To change the size limit, edit the video sync source configuration file `<root directory of your OneMediaHub installation>/config/foundation/foundation/fdo#foundation/VideoSource.xml` and modify the value of the `maxSize` property:

```
<void property="maxSize">
  <string>250M</string>
</void>
```

Note

For the upload via Portal user interface this limit is the same (2 GB) and is configurable, but the maximum value guaranteed is 2 GB.

3.12.16.3 How to configure the max file and music size allowed by the DS Server

The DS Server allows music items and generic files coming from a client or as result of an API call with a size limit. This limit is configurable and is set by default to 2 GB.

To change the size limit, edit the file sync source configuration file `<root directory of your OneMediaHub installation>/config/foundation/foundation/fdo#foundation/FileSource.xml` and modify the value of the `maxSize` property:

```
<void property="maxSize">
  <string>250M</string>
</void>
```

Note

For the upload via Portal user interface this limit is the same (2 GB) and is configurable, but the maximum value guaranteed is 2 GB.

3.12.17 How to configure the Server API base URL

If a system administrator wants to configure the base URL of the Server API (by default `/sapi`) so that a customer can differentiate the URL from other customers or services (for example, `/myapi`), the following two files should be modified:

- `<root directory of your OneMediaHub installation>/conf/portal/portal-ext.properties`

  ```
  # configurable base url for SAPI. It must match the servlet-mapping
   value in web.xml
  ```

```
  sapi.baseurl=myapi
```

- *`<root directory of your OneMediaHub installation>`*`/tools/tomcat/webapps/ROOT/web-inf/web.xml`

The following lines should be added as mappings for the SAPI servlet and the Impersonate filter:

```
<servlet-mapping>
  <servlet-name>SAPIServlet</servlet-name>
  <url-pattern>/myapi/*</url-pattern>
</servlet-mapping>

 ...

<filter-mapping>

  <filter-name>Impersonate Filter</filter-name>
  <url-pattern>/myapi/*</url-pattern>
</filter-mapping>
```

A simpler way to achieve the same result is to change the `${api.baseurl}=sapi` in the Quick Configuration as described in Section 3.3, “Quick configuration”.

Note

Even if SAPI default URL (`/sapi`) is not used by the AJAX UI or the customer does not implement any API call using the `/sapi` path, the default `/sapi` url-pattern for the API servlet in `web.xml` should not be disabled: doing so will compromise some core client functionalities, such as the media and files sync. OneMediaHub client Apps rely on Server API as well for certain advanced features.

Note

The name of the new base URL cannot match one of the already existing web applications in the product (so it cannot be for example `/funambol`, `/ROOT`, `/content`) or any already defined path in the ROOT webapp or in the `web.xml` such as `/c`, `/me` or `/bb`.

3.12.18 *Help* link

OneMediaHub does not provide the content for the *Help* section out of the box. Every Portal installation should point to an external site or page where the content for the *Help* section is provided.

The easiest way to achieve this is mapping the `/help` path used in the Portal to an external resource, adding a corresponding directive in the configuration file of the Apache HTTP Server. For example, to redirect `/help` to `http://help.onemediahub.com`:

```
RedirectMatch /help http://help.onemediahub.com/
```

3.12.19 *Contact Us* link

OneMediaHub doesn't provide a landing page for the *contact us* link, so every installation needs to open an external page that contains contact information. It is possible to map the `/contactus` path used by the Portal to an external page, adding a directive in the configuration file of the Apache HTTP Server. For example, to redirect `/contactus` to `http://funambol.com/contact.html`:

```
RedirectMatch /contactus http://funambol.com/contact.html
```

3.12.20 How to configure Google Analytics

It is possible to include Google Analytics in both the Portal and Mobile portal to generate detailed statistics about the visitors. The *<root directory of your OneMediaHub installation>*`/conf/portal/portal-ext.properties` file should be modified:

```
# Google Analytics web property ID
# if not provided, no Google Analytics code in the Portal and Mobile
 Portal
sp.google-analytics.account=
```

To generate a Google Analytics web property ID, check the Google Analytics website at [37]

3.12.21 How to enable iOS Push

If a system administrator wants to enable the iOS Push, the following file should be modified:

- *<root directory of your OneMediaHub installation>*`/config/com/funambol/server/plugin/IOSFeedbackServiceTask.xml`

  ```
  <void property="enabled">
      <boolean>true</boolean>
  </void>
  ```

3.12.22 How to enable/disable music management

In order to enable or disable the music management in the portal (by default is enabled), it's possible to modify the file *<root directory of your OneMediaHub installation>*`/config/portal/portal-ext.properties` editing the value of the following property:

```
# Set to true to enable the audio. Otherwise, the audio items will be
# managed as file and no metadata will be stored into db.
audio.enabled=
```

3.12.23 How to enable media transcoding

If you want to enable the media transcoding, follow these steps:

1. Set the property `media.transcoding-service-class` to `com.funambol.transcoding.impl.ets.ETSTranscodingServiceImpl` in the configuration file *<root directory of your OneMediaHub installation>*`/config/portal/portal-ext.properties`

2. If the storage is an S3 service, you should set the properties `ets.pipeline-id`, `ets.client-region`, and `ets.s3-container-name` according to the AWS setup. The properties `storage.container-name` and `ets.s3-container-name` must have the same value

3. If the storage is a filesystem, the properties `storage.identity`, `storage.credential`, `ets.pipeline-id`, `ets.client-region`, and `ets.s3-container-name` must be set according to the AWS setup

4. Enable the task for deleting the transcoding jobs table, editing the configuration file `<root directory of your OneMediaHub installation>/config/com/funambol/server/plugin/TranscodingJobDeleteScheduledTask.xml` and setting the property `enabled` to `true`:

```
<?xml version="1.0" encoding="UTF-8"?>
<java class="java.beans.XMLDecoder" version="1.5.0_11">
    <object
 class="com.funambol.foundation.util.TranscodingJobDeleteScheduledTa
sk">
        <!-- enable the task to manage the deletion of old
 transcoding job -->
        <void property="enabled">
            <boolean>true</boolean>
        </void>
        <!-- the interval time, in days, from an execution of the
 task to another -->
        <void property="intervalInDays">
            <long>7</long>
        </void>
    </object>
</java>
```

3.12.24 How to customize the *Privacy Policy* and *Term of Use* pages redirecting the OneMediaHub links to external pages.

1. Open the Apache `httpd.conf` configuration file

2. Check that the `mod_rewrite` module is loaded:

```
LoadModule rewrite_module modules/mod_rewrite.so
```

3. In the `VirtualHost` section check that the `RewriteEngine` is on:

```
RewriteEngine on
```

4. Add the following lines setting the desired URL:

```
RedirectMatch /ui/jsp/privacy.jsp https://www.example.com/
privacy_policy
RedirectMatch /ui/jsp/terms.jsp  https://www.example.com/
terms_of_use
RedirectMatch /ui/mobile/jsp/pp.jsp https://www.example.com/
privacy_policy
RedirectMatch /ui/mobile/jsp/toc.jsp https://www.example.com/
terms_of_use
```

3.12.25 How to configure user-level communication channel

The user-level communication channel allows the configuration of the desired communication channel to sent user communications, at a user level, where two distinct users can receive notifications via E-Mail or SMS.

This feature requires a correct configuration of the OneMediaHub E-Mail and SMS providers.

If you wish to use this feature, you must configure the subscription notification sender and builder, by modifying the file `<root directory of your OneMediaHub installation>/config/portal/portal-ext.properties`:

```
subscription.notification-sender-
class=com.funambol.subscriptions.notifications.
usercommunicationchannel.UserCommunicationChannelNotificationSender

subscription.notification-builder-
class=com.funambol.subscriptions.notifications.
usercommunicationchannel.UserCommunicationChannelNotificationBuilder
```

The default user communication channel is configurable in the file `<root directory of your OneMediaHub installation>/config/portal/portal-ext.properties`. You can use the values `email` or `sms`.

```
# Default communication channel for sending
user notifications user-communication.default-channel=
```

3.13 Server URL configuration

Change the `serverURI` property in the `<root directory of your OneMediaHub installation>/config/Funambol.xml` file:

```
<void property="serverURI">
  <string>http://<!-- your-host -->:<!-- your-port -->/sync</string>
</void>
```

3.13.1 Changing the default server port

The default port is `8080`, but you may choose to use a different port. In that case, you must modify the following files, substituting your preferred port number to `8080`:

- `<root directory of your OneMediaHub installation>/tools/tomcat/conf/server.xml`
- `<root directory of your OneMediaHub installation>/config/portal/portal-ext.properties` (see Section 3.12.3, "`portal-ext.properties`")
- `<root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/html/devices/content.properties`
- `<root directory of your OneMediaHub installation>/config/com/funambol/pimlistener/PIMListenerConfiguration.xml`

3.13.2 Supporting multiple server URL

If you need to support multiple server URLs, follow these steps:

1. edit the `<root directory of your OneMediaHub installation>/config/portal/portal-ext.properties` file and set the property `${portal.server}` to one of the desired URLs (see Section 3.3, "Quick configuration"),

   or:

edit the *<root directory of your OneMediaHub installation>*/config/Funambol.xml file (see Section 3.13, “Server URL configuration”)

2. configure your web server (e.g. Apache) to forward the other URLs that you wish to support to the previously defined URL

3.14 Email configuration

The OneMediaHub Portal can send several types of Email notifications, provided that an SMTP server is configured. This section describes how to customize the notification messages and how to configure the portal to send Emails.

3.14.1 New user messages

It is possible to customize the text of the Email messages sent to the users. To configure the registration Email messages, edit the files active_user_mail_body.txt or create_user_mail_subject.txt under *<root directory of your OneMediaHub installation>*/tools/tomcat/webapps/ROOT/template/mail/.

Note

The files are under different folders according to the languages defined in the portal-ext.config file, e.g.

<root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/template/mail/it

<root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/template/mail/en

The changes are applied at runtime, so there is no need to restart the server.

3.14.2 Email counter configuration for messages containing the app download URL

It is possible to limit the number of Email messages for download links sent by the OneMediaHub Portal to a predefined value.

You can customize this behavior by editing the following properties in the file *<root directory of your OneMediaHub installation>*/config/portal/portal-ext.properties:

```
sp.syncportal.email-counter=true
```

```
sp.syncportal.email-counter.messages=10
```

To disable the counter:

```
sp.syncportal.email-counter=false
```

In the OneMediaHub Portal you cannot set a different number of download messages for each user. The counter controls all the email messages used for sending the download link on a monthly basis. The configuration of the Email counter is immediately effective, with no need to restart the server.

Important

The configuration defined in `portal-ext.properties` for the Email counter applies to new users only, or when existing users are reset, or automatically every month.

3.15 Reminder Emails

The OneMediaHub periodically sends, to all users who have not opted out of receiving reminders, a summary of all the digital content they have secured to OneMediaHub. This feature can be configured by editing the following file:

```
<root directory of your OneMediaHub installation>/config/com/funambol/
server/plugin/ReminderEmailScheduledTask.xml
```

It is possible to customize the layout of the Email messages sent to the users. To configure the reminder Email messages, edit the files `reminder_body.ftl` or `reminder_thumbnails.ftl` under `<root directory of your OneMediaHub installation>/tools/tomcat/webapps/ROOT/ui/notifications`.

3.16 SMS Sender configuration

To receive the SMS notification message, configure the SMS Service by editing the following file:

```
<root directory of your OneMediaHub installation>/config/com/funambol/
server/sms/SMSProvider.xml
```

with the user and password to access the service provider:

```
<void property="username">
  <string><!-- your-push-user --></string>
</void>

<void property="password">
  <string><!-- your-push-pwd --></string>
</void>
```

By default, the option to limit the OneMediaHub Portal to a predefined number of SMS messages for download links or for OTA configuration messages is enabled. You can customize this behavior by editing the following properties in the file `<root directory of your OneMediaHub installation>/config/portal/portal-ext.properties`:

```
sp.syncportal.sms-counter=true
sp.syncportal.sms-counter.messages=10
```

To disable the counter, change the `sp.syncportal.sms-counter` property to `false`:

```
sp.syncportal.sms-counter=false
```

Note

In the OneMediaHub Portal you cannot set a different number of download messages for each user. The counter controls all the SMS messages (text SMS and OTA configuration SMS) for the given user in a month.

The configuration of the SMS counter in the product is automatically reloaded, there is no need to restart the service.

The configuration defined in `portal-ext.properties` for the SMS counter applies to new users only or when existing users are reset either automatically (monthly), or by an administrator. The administrator can reset the SMS counter from the user interface. The number of SMS's left for existing users is recorded in the database and changes according to usage.

The product tracks the number of SMS requests sent to the SMS service (OneMediaHub, by default, supports SubitoSMS, see below.) The number of SMS's used can be different if any text or OTA message requires concatenated SMS.

Important

OneMediaHub, by default, supports SubitoSMS, which is an SMS provider (for more information, please see [30]). OneMediaHub uses SubitoSMS's APIs for all services that require sending SMS messages: OTA configuration, SMS push, Clients download, etc.

Unless you received SubitoSMS credentials from OneMediaHub, you will need to sign up for the service at [30], purchase some credit and configure your username and password.

If you prefer to use a different SMS provider, please contact the Funambol support [31], since it will require further customization and configuration.

3.17 OTA settings provisioning configuration

Edit the file *`<root directory of your OneMediaHub installation>`*`/config/portal/portal-ext.properties`; OTA works with the following settings by default:

```
#
# Funambol OTA settings
#

sp.syncportal.ota.account.name=onemediahub

sp.syncportal.ota.account.pin=1010

# set sp.syncportal.sms-counter to 'true' to limit the number of SMS
 messages per month

sp.syncportal.sms-counter=false
sp.syncportal.sms-counter.messages=10
```

The option to limit OTA to a predefined number of SMS messages for each user/device is disabled by default:

```
sp.syncportal.sms-counter=false
sp.syncportal.sms-counter.messages=10
```

To enable the counter, change the `sp.syncportal.sms-counter` property to:

```
sp.syncportal.sms-counter=true
```

and set the desired value. The counter controls all monthly SMS messages (text SMS's and OTA configuration SMS's) for the given user.

To change the name of the OTA profile, change the value of `sp.syncportal.ota.account.name` in the file `<`*`root directory of your OneMediaHub installation`*`>/config/portal/portal-ext.properties`:

```
#
# Funambol OTA settings
#

sp.syncportal.ota.account.name=funambol
```

To change the name of the sender change the value of the property `sender` in the file `<`*`root directory of your OneMediaHub installation`*`>/config/com/funambol/server/sms/SMSService.xml`:

```
<?xml version="1.0" encoding="UTF-8"?>
<java version="1.6.0" class="java.beans.XMLDecoder">
  <object class="com.funambol.syncserver.sms.CaredSMSService">
    <void property="sender">
      <string>funambol</string>
    </void>
  </object>
</java>
```

Note

In the OneMediaHub Portal you cannot set a different number of OTA messages for each user.

3.18 Forgot password

The forgot password can be sent to the user via Email or via SMS.

It is possible to customize the texts of both the SMS and Email message sent to the user. To configure the “forgot password” SMS message, edit the file `send_password_sms_body.txt` under `<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/webapps/ROOT/template/sms/`. To configure the “forgot password” Email message, edit the files `send_password_mail_subject.txt` and `send_password_mail_body.txt` under `<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/webapps/ROOT/template/mail/`.

Note

The files are under different folders according to the languages defined in the `portal-ext.config` file, e.g.

`<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/webapps/ROOT/template/mail/it`

`<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/webapps/ROOT/template/mail/en`

or

```
<root directory of your OneMediaHub installation>/tools/tomcat/
webapps/ROOT/template/sms/pt

<root directory of your OneMediaHub installation>/tools/tomcat/
webapps/ROOT/template/sms/de
```

The changes are applied at runtime, so it is not needed to restart the server.

By default, the sending is set to use the Email. You can force the sending via SMS by editing the `sp.syncportal.pwd-via-sms` property in the file `<root directory of your OneMediaHub installation>/config/portal/portal-ext.properties`:

```
sp.syncportal.pwd-via-sms=true
```

3.19 Push policy configuration

With OneMediaHub it is possible to configure different push policies for different device types. In particular, the following policies are defined and can be customized editing the configuration files listed below (currently just one policy does apply):

1. SMS service configuration (see the section called “SMS Service”):

   `<root directory of your OneMediaHub installation>/config/com/funambol/server/sms/SMSProvider.xml`

This file is used to configure the SMS service.

The following sections describe the format of a `*PushSender.xml` configuration file and the default values for an out-of-the-box installation of the OneMediaHub.

3.19.1 The PushSender configuration file

A PushSender configuration file is an XML file that allows the customization of the properties listed below, together with the configuration file's relevant fragment.

Note

More than one source can be specified. The available source names are: `card`, `scard`, `cal`, `scal`, `event`, `task`, and `picture`.

Enabling/disabling TCP push

```
<void property="enableTCPIP">
  <boolean>[true|false]</boolean>
</void>
```

Note

This applies to both connection-less and connection-oriented push.

Enabling/disabling SMS push

```
<void property="enableSMS">
  <boolean>[true|false]</boolean>
```

```
</void>
```

Notification archiving (for both TCP and SMS push)

Push notifications can be archived in the database (in the table `fnbl_push_sender_notification`) if specified. This is enabled by the properties `archiveTCPIPNotification` and `archiveSMSNotification`:

```
<void property="archiveTCPIPNotification">
  <boolean>[true|false]</boolean>
</void>

<void property="archiveSMSNotification">
  <boolean>[true|false]</boolean>
</void>
```

By default, `archiveTCPIPNotification` is set to `false` and `archiveSMSNotification` to `true`.

Resending interval for SMS push

In the case of SMS push, a situation that should be avoided is the continuous sending of SMS messages when these are not being received by the device. In fact, GSM/CDMA networks queue SMS messages until a phone joins the network again. A phone could be disconnected from a network if for example it is turned off or in an area without GSM/CDMA coverage. Since the phone will receive the SMS later on, the system should not send other notifications until the previous one is received by the phone.

However, if the system stops sending SMS notifications until the previous notification has been received and for some reason one of the SMS notifications is lost, the server will simply not push the device any more. For this reason, if the OneMediaHub does not receive a status indicating that a notification has been received, after a while it sends another notification anyway.

This tolerance can be configured by changing the property `maxDeliveryDelayHours`:

```
<void property="maxDeliveryDelayHours">
  <double>[number of hours]</double>
</void>
```

Note

If the parameter `archiveSMSNotification` is set to false, SMS messages are sent without checking whether the previous one was received.

Filtering

Different types of filtering are available. For example, device filtering allows you to specify a particular device or group of devices that should be excluded by the push, while source filtering lets you specify which data sources should be pushed.

In certain situations it is useful to ban some phone numbers so that no SMS messages are sent to them. For example, in case of test phones or to selectively avoid some phones being pushed. This can be done by banning one or more phone numbers with the `deviceFilter.bannedMsisdn` property:

```
<void property="deviceFilter">
  <object class="com.funambol.server.notification.sender.DeviceFilter">
```

```
    <void property="bannedMsisdn">
      <array class="java.lang.String" length="[n]">
        <void index="[i]">
          <string>[regular expression]</string>
        </void>
      </array>
    </void>
  </object>
</void>
```

Note

You can change the `length` attribute and have more `<void index="[i]">...</void>` sections to specify multiple regular expressions that will be matched. If the phone number to which the notification should be sent matches one of the given regular expressions, the push is discarded. For more information on the regular expression grammar used by this property, see [21].

A sender is also configured to notify changes to specific sources only. This is done by the property `syncsourceFilter`:

```
<void property="syncsourceFilter">
  <object
 class="com.funambol.server.notification.sender.SyncsourceFilter">
    <void property="enabledSyncsource">
      <array class="java.lang.String" length="[n]">
        <void index="[i]">
          <string>[source name]</string>
        </void>

        ...

      </array>
    </void>
  </object>
</void>
```

Note

More than one source can be specified. The available source names are: `card`, `scard`, `cal`, `scal`, `event`, `stask`, `picture`.

3.20 OneMediaHub SNMP Appender configuration

The OneMediaHub SNMP Appender enables the Data Synchronization Service to send SNMP notifications (traps) as part of the server logging facility.

3.20.1 Configuration parameters

The OneMediaHub SNMP Appender sends its traps using `SNMPv2c` and according to the MIB defined in `FUNAMBOL-LOGGING-MIB.txt` (see Appendix D, *FUNAMBOL-LOGGING-MIB.txt*). All SNMP parameters and OIDs are highly configurable; the parameters are described in the following table:

Property	Default values	Description
`managerAddress`	`127.0.0.1`	The manager's IP address
`managerPort`	`162`	The UDP port the manager listens to for traps
`trapOID`	`1.3.6.1.4.1.27219.2.2.0.1`	Enterprise OID to be specified in the SNMP trap
`community`	`public`	Community string ("public", "private")
`thresholdLevel`	`ERROR`	Logging level over which a log record should be notified (including the specified level

`variables`	`{1.3.6.1.4.1.27219.2.1.1=%t,`
	`1.3.6.1.4.1.27219.2.1.2=%L,`
	`1.3.6.1.4.1.27219.2.1.3=%l,`
	`1.3.6.1.4.1.27219.2.1.4=%s,`
	`1.3.6.1.4.1.27219.2.1.5=%d,`
	`1.3.6.1.4.1.27219.2.1.6=%u,`
	`1.3.6.1.4.1.27219.2.1.7=%S,`
	`1.3.6.1.4.1.27219.2.1.8=%m}`
		Hash map of OID-format entries. Each format entry specifies the layout for the associated OID. The following substitutions are performed:
		• `%t` – timestamp in DateAndTime format (see [22])
		• `%tt` – timestamp in the yyyy-MM-dd HH:mm:ss format
		• `%L` – log level as integer value (`0`: FATAL, `1`: ERROR, `2`: WARN, `3`: INFO, `4`: DEBUG, `5`: TRACE)
		• `%LL` – log level as string (`FATAL`, `ERROR`, `WARN`, `INFO`, `DEBUG`, `TRACE`)
		• `%l` – logger name
		• `%s` – session id
		• `%d` – device id
		• `%u` – user name
		• `%S` – source
		• `%m` – log message

3.20.2 Configuration file

OneMediaHub SNMP Appender's configuration file is `funambol.snmp-appender.xml`, copied by the installation procedure in the server appender config path:

`<`*`root directory of your OneMediaHub installation`*`>/config/com/funambol/server/logging/appender`

Below is an example of the configuration file:

```
<?xml version="1.0" encoding="UTF-8"?>
<java version="1.5.0_10" class="java.beans.XMLDecoder">
```

```
<object class="com.funambol.server.logging.SNMPAppender">

<void property="trapOID">
  <string>1.3.6.1.4.1.27219.2.2.0.1</string>
</void>

<void property="managerAddress">
  <string>127.0.0.1</string>
</void>

<void property="managerPort">
  <int>162</int>
</void>

<void property="name">
  <string>funambol.snmp-appender</string>
</void>

<void property="thresholdLevel">
  <string>ERROR</string>
</void>

<void property="community">
  <string>public</string>
</void>

<void property="variables">
  <object class="java.util.LinkedHashMap">

    <void method="put">
      <string>1.3.6.1.4.1.27219.2.1.1</string>
      <string>%t</string>
    </void>

    <void method="put">
      <string>1.3.6.1.4.1.27219.2.1.2</string>
      <string>%L</string>
    </void>

    <void method="put">
      <string>1.3.6.1.4.1.27219.2.1.3</string>
      <string>%l</string>
    </void>

    <void method="put">
      <string>1.3.6.1.4.1.27219.2.1.4</string>
      <string>%s</string>
    </void>

    <void method="put">
      <string>1.3.6.1.4.1.27219.2.1.5</string>
      <string>%d</string>
    </void>
    <void method="put">
      <string>1.3.6.1.4.1.27219.2.1.6</string>
      <string>%u</string>
    </void>

    <void method="put">
      <string>1.3.6.1.4.1.27219.2.1.7</string>
      <string>%S</string>
    </void>

    <void method="put">
      <string>1.3.6.1.4.1.27219.2.1.8</string>
      <string>%m</string>
    </void>
  </object>
</void>

<void property="filterCriticalMessages">
  <boolean>true</boolean>
</void>

<void property="criticalMessages">
  <object class="java.util.HashSet">

    <void method="add">
      <string>java.lang.StackOverflowError</string>
    </void>

    <void method="add">
      <string>java.lang.OutOfMemoryError</string>
    </void>

    <void method="add">
      <string>java.net.ConnectException</string>
    </void>

    <void method="add">
      <string>java.net.NoRouteToHostException</string>
    </void>

    <void method="add">
      <string>java.net.UnknownHostException</string>
    </void>

    <void method="add">
      <string>com.mysql.jdbc.CommunicationsException</string>
    </void>

    <void method="add">
      <string>java.sql.SQLException</string>
    </void>
  </object>
</void>
```

```
  </object>
</java>
```

The OneMediaHub SNMP Appender can be attached to any OneMediaHub logger by simply adding it to the list of the appenders associated with the logger.

In order to enable it, you can add the following lines to the configuration file `<root directory of your OneMediaHub installation>/config/com/funambol/server/logging/logger/funambol.xml`:

```
<void method="add">
  <string>funambol.snmp-appender</string>
</void>
```

If you do not have an SNMP server, it is still possible to verify that the SNMP Appender is working properly using the Unix command `snmptrapd`. For an example, please see Appendix F, *Examples of sent SNMP traps*.

3.20.3 Log records filtering

The OneMediaHub SNMP Appender only notifies log records that have a logging level higher than the specified threshold.

It is possible to apply an additional filter to the given logging event, based on the property `filterCriticalMessages` and on the set of `criticalMessages`.

The property `filterCriticalMessages` can be set to `true` in order to verify if the log event is included in the set of `criticalMessages`.

The property `criticalMessages` contains a list of exception class names considered critical. When the `filterCriticalMessages` is `true`, the SNMP Appender parses all incoming log events to see if the stack trace contained in the event description matches any of the exceptions listed in `criticalMessages`. In this case, a new logging event is created.

If the level of the event is `FATAL` and the event is not critical, a logging event will be generated with a message starting with "*Unknown fatal error*".

Note

The `criticalMessages` and `filterCriticalMessages` parameters can be configured in the Appender configuration file (see Section 3.20.2, “Configuration file”).

3.20.4 OneMediaHub SNMP error trap

For more details on SNMP errors, please see Section 7.6, “SNMP errors”.

3.21 Location from IP address and `Accept-Language` header

OneMediaHub uses multiple services to determine the country from which the request originates, and, for example, to automatically set the country in the AJAX Portal or Mobile Portal signup.

3.21.1 IP address and IP2Location

IP2Location offers an external service supported by OneMediaHub, used to determine the country from which the request originates based on the user's IP address, so that the appropriate country and timezone can automatically be set. If you have a valid IP2Location IP-Country Database license (see [32]) for your server, please contact their support for information on how to use this service.

3.21.2 `Accept-Language` header

If an IP2Location IP-Country Database license is not present and the `ipcountry` table is not populated or the user's country cannot be decoded from the IP address, OneMediaHub uses the `Accept-Language` header as a fallback for determining the country from which the request originates. The feature can be disabled, modified or extended, tuning the content of the `fnbl_country_language` table where different locales from the `Accept-Language` header are mapped to their countries. To disable the feature, delete every record in the table.

3.22 Collecting client logs

The server is able to receive client log files and save them on the file system for future issues, for investigation/troubleshooting purposes.

The URL used by the client for sending the request is `http://server:port/client-log`

The client should send the log as `text/plain` or in a compressed format, but in any case, the server will store it as a compressed file in order to save file system space.

By default, client logs are stored in `<`*`root directory of your OneMediaHub installation`*`>/logs/clients` using the following structure and naming convention:

`<USERNAME>/<DEVICE_ID>_<DATE>_<TIME>.zip`

For instance log files for user 'usertest' and device 'fwm-159875312' received at 2010/10/20 11:50 UTC will be stored in:

`<`*`root directory of your OneMediaHub installation`*`>/logs/clients/usertest/fwm-159875312_20101020_115000.zip`

In a cluster environment, the client logs will not be stored in a unique directory but under the `<`*`root directory of your OneMediaHub installation`*`>/logs/clients` directories for each installed server.

3.22.1 Configuration parameters

`<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/webapps/funambol/WEB-INF/web.xml` contains the main parameters that can be used to configure server behavior regarding client logs.

The parameters are the following:

- *`CLIENTS_LOG_BASEDIR`*: the directory used as a root directory to store the client log files. The default value is `../../../logs/clients` which corresponds to `<`*`root directory of your OneMediaHub installation`*`>/logs/clients`. Please remember to change the value of this parameter accordingly to the *`clientsLogArchivationDir`* parameter as described in Section 3.23.1, “Configuration file”

- *CLIENTS_LOG_MAX_SIZE*: is the maximum log file size (in bytes) accepted by server. The default value is 10M. This parameter can be set using different formats like 100k, 1M, 5G or 2.5m.

3.23 Client log cleanup service

In order to limit and monitor the file system resources used when collecting client logs (see Section 3.22, "Collecting client logs"), a new service will be deployed under the OneMediaHub as a plugin, the ClientLogCleanUpPlugin.

This plugin is configured via the XML files whose path is <*root directory of your OneMediaHub installation*>/config/com/funambol/server/plugin/ClientLogCleanUpPlugin.xml, please see Section 3.23.1, "Configuration file" for further information about the parameters you are allowed to edit.

Therefore, any standard installation of the OneMediaHub will have this new component running as a server plugin, i.e. a background process that is periodically alerted and checks whether the number of directories stored in the OneMediaHub client log directory exceeds the correct threshold.

In this case, the plugin process starts and moves all the log files and directories into a zip archive, stored into a proper filing directory. You may just want to delete log files when the maximum number of log files is reached, in this case you are just required to omit the filing directory parameter in the plugin configuration file. When log files are moved to a zip archive, a new file is created in the filing directory with the naming convention that follows the pattern yyyymmdd_hhmmss.zip (e.g. 20101111_130455.zip).

3.23.1 Configuration file

As we said in the previous section, the ClientLogCleanUpPlugin is configured via an XML file that you can find through the following path:

<*root directory of your OneMediaHub installation*>/config/com/funambol/server/plugin/ClientLogCleanUpPlugin.xml

You can edit this file, if you want to provide custom values for any of the following parameters:

- *clientsLogBaseDir*: is the directory that contains the user directories where client log files have been uploaded. This parameter is mandatory and the standard value is ../../../logs/clients. Remember to change this parameter according to the *CLIENTS_LOG_BASEDIR* parameter used by the *send log* feature as described in Section 3.22.1, "Configuration parameters"

- *clientsLogArchivationDir*: is the directory where zip archives are stored each time the ClientLogCleanUp process is run. This parameter is optional and if you omit it, client log files are not moved into a zip archive but simply deleted. The standard value is ../../../logs/clients-archive

- *clientsLogTimeToRest*: is the time the ClientLogCleanUp process sleeps before checking how many directories exist in the clientsLogBaseDir folder. This parameter is optional and the default value is 3600000, the equivalent of 1 hour, expressed in milliseconds.

3.24 Antivirus service

The antivirus service allows to scan files to discover viruses. The files that are found as infected will be removed from the server. In order to enable this feature, a new service is deployed in OneMediaHub as a plugin, called AntiVirusScheduledTask.

This plugin is configured through the XML file `<root directory of your OneMediaHub installation>/config/com/funambol/server/plugin/AntiVirusScheduledTask.xml`. See Section 3.24.3, “Configuring the OneMediaHub server” for further informations about the parameters you are allowed to edit.

As the antivirus service will check only the not yet validated files (pictures, videos, and audio files won't be checked), a new `Validator` must be configured by editing the file `portal-ext.properties` (see Section 3.24.3, “Configuring the OneMediaHub server”.) This `Validator` will set the files content status to `to be validated` and move the files to another directory, `<root directory of your OneMediaHub installation>/ds-server/db/antivirus`, to be checked later. The files are kept in the antivirus directory only until they are analyzed.

3.24.1 Installing McAfee VirusScan

1. Download the McAfee VirusScan package provided by Funambol.

2. Decompress the file to a temporary directory:

   ```
   mkdir /tmp/mcafee
   ```

   ```
   tar -xzf distribution-file -C /tmp/mcafee
   ```

3. Execute the installation script:

   ```
   /tmp/mcafee/install-uvscan installation-directory
   ```

   If you do not specify an installation directory, the software is installed in `/usr/local/uvscan`. If the installation directory does not exist, the installation script asks whether you want to create it.

   The installation script also asks whether you want to create symbolic links to the executable file, the shared library, and the man page. Type `Y` to create each link, to make sure that the `uvscan` command is available for the OneMediaHub server.

4. Download the DAT files (antivirus definitions): in order to do this, configure the script `<root directory of your OneMediaHub installation>/bin/update-mcafee` setting the `install_dir` variable, and execute it. This step must be executed by a Unix user with writing permissions on the directory where McAfee VirusScan is installed.

Important

Since the update file for McAfee is available on a remote FTP server, the `ftp` client command is required where OneMediaHub is installed.

3.24.2 Updating virus definitions of McAfee VirusScan

In order to upgrade the McAfee VirusScan's antivirus definitions, the script to be used is `<root directory of your OneMediaHub installation>/update-mcafee`. This script can be invoked by a cron job for regular updates.

Note

If not yet done, this script has to be changed to set `install_dir` to the current installation directory of McAfee VirusScan (`/usr/local/uvscan` by default.) It must be executed by a Unix user with writing permissions on the directory where McAfee VirusScan is installed.

3.24.3 Configuring the OneMediaHub server

As mentioned above, the AntiVirusScheduledTask plugin is configured through the XML file `<`*`root directory of your OneMediaHub installation`*`>/config/com/funambol/server/plugin/AntiVirusScheduledTask.xml`. Edit this file if you want to provide custom values for the following parameter:

- *`enable`*: when `true` the task will be enabled; `false` by default.

The other file that must be configured is `<`*`root directory of your OneMediaHub installation`*`>/config/portal/portal-ext.properties`:

- `media.content-validator-class`: must be `com.funambol.foundation.validator.impl.AntiVirusValidator`
- `antivirus.scan-interval`: the interval of the antivirus runs (in milliseconds)
- `antivirus.max-files-to-scan`: the number of files that can be scanned at each time by the antivirus
- `antivirus.provider-class`: must be `com.funambol.foundation.antivirus.McafeeAntiVirusProvider`

Chapter 4. OneMediaHub Portal administration

4.1 Changing the admin user password

In OneMediaHub, all user passwords are encrypted in the database.

To change the password for the `admin` user, run the script `passwd` in the `<root directory of your OneMediaHub installation>/bin` directory:

```
cd <root directory of your OneMediaHub installation>/bin

./passwd admin
```

The script will then prompt you to enter the current password and, if correct, the new password followed by a confirmation of the new password (similarly to the Unix command `passwd`.)

For legacy reasons, OneMediaHub does offer the possibility to the `admin` user to change the password of every other user, given the current password is known. This is the only way to change the password of system standard users like `csr` (for the Customer Support Representative graphical user iterface):

```
cd <root directory of your OneMediaHub installation>/bin

./passwd
```

Warning

Be sure to invoke exactly this command, since it is exactly spelled as the Unix command `passwd`.

Changing the password for the `admin` user in the database will block all the functionalities of OneMediaHub, unless you update the Push Connection Service and PIM Listener Service configuration files specifying the new password (in plain text) in the following files:

1. `<root directory of your OneMediaHub installation>/config/com/funambol/ctp/server/CTPServerConfiguration.xml`
2. `<root directory of your OneMediaHub installation>/config/com/funambol/pimlistener/PIMListenerConfiguration.xml`

4.2 Handling user roles

In the OneMediaHub, user roles have been extended in order to provide information about the storage quota available to each user. Besides default roles such as `sync_user` and `sync_administrator`, some further roles have been added to provide information about the storage quota available, these are:

Role	Role Description	Quota
demo	Demo user	150M
standard	Standard user	1G
premium	Premium user	5G
premiumplus	Premium Plus user	10G

Role	**Role Description**	**Quota**
ultimate	Ultimate user	50G

According to the picture sync sources configuration, there is a quota amount for each role. In order to make it easier to inspect roles bound to each user and to set/unset roles for a user, a script was provided under the `<root directory of your OneMediaHub installation>/bin` directory called `manage-roles`.

In order to run this script you need to set the `JAVA_HOME` environment. A proper JDBC driver should be available in the class path. If you run the `manage-roles` script without providing further info, a number of help messages are shown that will help you understand how you can use it.

In order to retrieve all available roles, you can run the following command (assuming you are in the root directory of your OneMediaHub installation):

```
bin/manage-roles -g
```

The output of this command is something like:

```
Retrieving roles

Roles are:

demo Demo user

premium Premium user

premiumplus Premium Plus user

standard Standard user

sync_administrator Administrator

sync_user User

ultimate Ultimate user
```

Where each item in the list represents the role name and the role description. If you want to retrieve all roles set for a user, you can run the following command:

```
bin/manage-roles -g  -u username
```

Taking into consideration that if the user does not exist, no error is shown but no role is returned. Once you checked all the roles you are allowed to use for the installation, you can change the roles set for each user.

In order to set user roles, you need to run the following command:

```
bin/manage-roles -s -u username -r role1,role2,role3
```

The 'r' argument requires a comma to separate the list of roles without spaces between each role. Please use the role name when you refer to a particular role, as the script is not able to recognize the role description when setting up new user roles. Keep in mind that when performing this operation, all existing roles bound to the user will be overwritten with the new roles in addition of the default ones.

The following errors may occur while invoking the script:

- roles cannot be modified to users with admin privileges
- all unrecognizable command line arguments cause the script to fail
- if the comma separated roles list contains blanks, they are not parsed properly and the script invocation aborts.

4.3 Creating new administrative users

This section describes how to create new administrators.

To create a new administrator, run the script `<`*`root directory of your OneMediaHub installation`*`>/bin/create-admin-user`:

```
cd <root directory of your OneMediaHub installation>/bin

./create-admin-user -c admin -u admin1 -p test
```

(the script will create a new admin user with username `admin1` and password `test`.)

Note

Invoking the script with not supported or missing arguments will trigger it to display a usage message:

```
usage: create-admin-user [-c <arg>] [-p <arg>] [-u <arg>]
Available commands: [admin]
 -c,--command <arg>  specifies the command to be invoked
 -p,--password <arg> specifies the user's password
 -u,--username <arg> specifies the username for the new
 administrator
```

Chapter 5. Operation tasks

This section describes the most common tasks helpful while operating a OneMediaHub Server.

For installation and post installation configuration instructions refer to Chapter 3, *Installation and configuration*.

Note

Once the software is installed and configured, the full directory of your OneMediaHub installation (e.g. `/opt/onemediahub`) can be archived and used as an installation package for other boxes, for example in a clustered environment.

5.1 Monitoring OneMediaHub services

This section describes the tools available for monitoring and checking the healthiness of the OneMediaHub services.

5.1.1 Monitoring the Data Synchronization Service

A OneMediaHub Data Synchronization Service node can be monitored in two different ways:

1. checking that the node is responding to SyncML requests properly

2. retrieving status and load information regarding the server

Node responsiveness check

To check if a OneMediaHub Data Synchronization Service node responds correctly to SyncML requests, use the following command:

```
<root directory of your OneMediaHub installation>/tools/management/bin/
check <URL> [options]
```

Where:

- URL is the server's synchronization URL (e.g. `http://myserver/sync`)
- *options* can be one or more of the following:
  - `-help`: print this message
  - `-response`: perform the check and print the service response
  - `-ct`, `--connect-timeout`: specify connect timeout in seconds
  - `-rt`, `--read-timeout`: specify read timeout in seconds
  - `-nc`, `--no-check-certificate`: don't check the server certificate

The `check` command prints the message `OK` on the standard output if the service is responding correctly; otherwise, it prints `KO` along with detailed information about the error condition encountered. The script exits with a non-zero status code in case of errors. In both cases, the time needed to perform the check is also printed in seconds and in milliseconds.

Node status and load monitoring

To retrieve status information about a Data Synchronization Service node, use the following command:

```
<root directory of your OneMediaHub installation>/tools/management/bin/
status <IP>:8101 [options]
```

where `<IP>` is the IP address of the node to check. The possible options are:

`-db <datasource>`
print which threads are using a database connection

`-deadlock`
print the thread dump of any thread involved in a deadlock condition

`-help`
print this message

`-memory`
print memory statistics

`-memoryusage`
print memory usage

`-processing`
print status of processing thread pools

`-requests <time-threshold>`
print processing time and stack trace of current requests

`-sessions <webapp-name>`
print number of active sessions

`-status`
print status

`-stopthread <thread-name>`
stop a thread (not safe)

`-thread <thread-name>`
print thread dump

`-threadlist`
print full thread list

`-threads`
print thread statistics

`-v, --verbose`
print verbose information

`-version`
print the server version

The options listed above provide the following status information:

<table>
<tr><th><em>OPTION</em></th><th><em>DETAIL</em></th></tr>
<tr><td>-db &lt;datasource&gt;</td><td>Connections usage status, with verbose option, stack trace for current thread. If the optional parameter <code>&lt;datasource&gt;</code> is specified, only the threads belonging the specified datasource are printed.

For example:
<pre>
jdbc/fnblds

    Num Idle: 8
    Num Active: 0
    Threads: -

jdbc/fnblreporting

    Num Idle: 8
    Num Active: 0
    Threads: -

jdbc/fnblcore

    Num Idle: 6
    Num Active: 2
    Threads:
                 http-8080-3 []
 [bernardo]: 122 ms
                 http-8080-1 []
 [bernardo]: 4 s

jdbc/fnbluser (partition-0)

    Num Idle: 6
    Num Active: 2
    Threads:
                 http-8080-31 []
 [bernardo]: 32 ms
                 http-8080-11 []
 [bernardo]: 1.4 m

jdbc/fnbluser (partition-1)

    Num Idle: 8
    Num Active: 0
    Threads: -
</pre></td></tr>
<tr><td>-deadlock</td><td>Deadlock information. For example:
<pre>
Deadlock information:

No deadlock detected.
</pre></td></tr>
<tr><td>-memory</td><td>Memory statistics. For example:</td></tr>
</table>

<table>
<tr><th><em>OPTION</em></th><th><em>DETAIL</em></th></tr>
<tr><td></td><td>

```
java.lang:type=Memory
        heap memory
                init=0
                used=4132160
                committed=4788224
                max=66650112
                free=61861888

        non heap memory
                init=29523968
                used=23131456
                committed=32669696
                max=121634816
                free=88965120

        total memory
                init=29523968
                used=27263616
                committed=37457920
                max=188284928
                free=150827008
```

</td></tr>
<tr><td>-memoryusage</td><td>

Memory usage. For example:

Memory usage:

```
Used memory: 11 Mb (12249680 bytes)

Committed memory: 13 Mb (14131200
 bytes)
```

</td></tr>
<tr><td>-processing</td><td>

It shows number of threads, number of busy threads, and number of current requests for HTTP and jk thread pools.

Example:

```
Processing thread status:
        ThreadPool name: http-8081
                number of threads:
 30
                number of busy
 threads: 10
                number of requests:
 2

        ThreadPool name: jk-8001
                number of threads:
 53
                number of busy
 threads: 11
                number of requests:
 5
```

</td></tr>
</table>

OPTION	***DETAIL***

-requests <time-threshold>	Processing time and, with verbose option, stack trace for current requests.
	If the optional parameter <time-threshold> is specified, only the requests with process time greater than the given value are printed. Accepted values are:
	• X: X milliseconds
	• Xms: X milliseconds
	• Xs: X seconds
	• Xm: X minutes
	• Xh: X hours
	For example:
	`1. TP-Processor82 [fwm-0xA0073B] [smith]: 1.17 s`
	`2. TP-Processor254 [fol-Q1JBSc6Rg==] [john]: 18.83 s`
	`3. TP-Processor279: 46 ms`
	`4. TP-Processor278: 12.98 s`
	`5. TP-Processor18: 16.21 m`
	`6. TP-Processor122: 3.43 s`
	`7. TP-Processor271: 12.89 s`
	`8. TP-Processor217: 61 ms`
	`9. TP-Processor277: 7.94 s`
	`10. TP-Processor282 [fmz-9ZBdU36t=] [bob]: 20.0 s`
	`11. TP-Processor284: 184 ms`

-sessions <webapp-name>	`Web application: /`
	`number of active sessions: 1`
	`Web application: /content`
	`number of active sessions: 0`
	`Web application: /funambol`

OPTION	***DETAIL***

	`number of active`
	`sessions: 0`
	`Total number of active`
	`sessions: 1`

-status	Not available
-stopthread <thread-name>	Stop the specified thread. Note that this is an unsafe operation and may destabilize the service
-thread <thread-name>	Print the thread dump of the given thread.
-threadlist	List of all threads

-threads	Thread statistics. For example:
	`java.lang:type=Threading`
	`thread count`
	`daemon=21`
	`peak=30`
	`live=28`

-version	Not available

5.1.2 Monitoring the PIM Listener Service

A PIM Listener Service node can be monitored by checking the status and load information regarding the service.

Node status and load monitoring

In order to retrieve status information about a PIM Listener Service node, use the following command:

```
<root directory of your OneMediaHub installation>/tools/management/bin/
status <IP>:3101 [options]
```

Where IP is the IP address of the node to check. The possible options are:

-deadlock
print the thread dump of any thread involved in a deadlock condition

-help
print this message

-memory
print memory statistics

-memoryusage
print memory usage

-requests <time-threshold>
print processing time and stack trace of current requests

-status
print status

`-stopthread <thread-name>`
stop a thread (unsafe)

`-thread <thread-name>`
print thread dump

`-threadlist`
print full thread list

`-threads`
print thread statistics

`-v, --verbose`
print verbose information

`-version`
print the server version

The options listed above provide the following status information:

<table>
<tr><th><i>OPTION</i></th><th><i>DETAIL</i></th></tr>
<tr><td>-deadlock</td><td>Deadlock information. For example:
<pre>
Deadlock information:

No deadlock detected.
</pre></td></tr>
<tr><td>-memory</td><td>Memory statistics. For example:
<pre>
java.lang:type=Memory
        heap memory
                init=0
                used=4132160
                committed=4788224
                max=66650112
                free=61861888
        non heap memory
                init=29523968
                used=23131456
                committed=32669696
                max=121634816
                free=88965120
        total memory
                init=29523968
                used=27263616
                committed=37457920
                max=188284928
                free=150827008
</pre></td></tr>
<tr><td>-memoryusage</td><td>Memory usage. For example:
<pre>
Funambol PIM Listener v.11.0.0

Memory usage:

       Used memory: 11 Mb (12249680
 bytes)
</pre></td></tr>
</table>

OPTION	***DETAIL***

	`Committed memory: 13 Mb`
	`(14131200 bytes)`

-requests <time-threshold>	Not available
-status	A string containing the status of the server and its load factor
-stopthread <thread_name>	Stop the specified thread. Note that this is an unsafe operation and may destabilize the service
-thread <thread_name>	Print the thread dump of the given thread.
-threadlist	List of all threads

-threads	Thread statistics. For example:
	`java.lang:type=Threading`
	`thread count`
	`daemon=21`
	`peak=30`
	`live=28`

-version	Version of the server. For example: `Funambol PIMListener v.11.0.0`

5.2 Storage cleanup

OneMediaHub stores media and temporary files under *<root directory of your OneMediaHub installation>*`/ds-server/db` (if OneMediaHub is configured to use Amazon S3, that directory is used only for temporary files.)

The time-to-live of temporary files is 24 hours, so files older than 24 hours must be deleted since they are useless. The same applies to empty directories not used in the last 24 hours.

OneMediaHub provides the script *<root directory of your OneMediaHub installation>*`/bin/cleanup-storage` for this purpose.

This script should be executed at least once a day (typically as cronjob), but basing on how long the execution takes, it might be run more frequently.

Important

In a cluster environment, with storage directories shared between all OneMediaHub instances, the cleanup script should be executed on an instance only or, alternatively, on all instances but at different times.

5.3 Remove orphan media files from file system storage provider

OneMediaHub provides the script *<root directory of your OneMediaHub installation>*`/bin/media-storage-cleanup` to check if in your file system storage some orphan items (without related row on database) exists in the media folder (*<root directory of your OneMediaHub installation>*`/ds-server/db`) and eventually delete them.

Important

> The script is available at the moment for file system only, an error will be shown in case of S3 storage provider.
>
> The script can take long time to be executed.
>
> In a cluster environment, with storage directories shared between all OneMediaHub instances, the script should be executed on an instance only or, alternatively, on all instances but at different times without overlapping the executions.

5.4 How to adjust the startup memory of the JVM

The heap memory is the part of memory used by Java processes to store the created objects. If an *`OutOfMemory`* issue occurs, you may want to increase its max value.

Use the **status** tool to check the amount of heap memory, running it with the *`-memory`* option.

5.4.1 Data Synchronization Service

By default, the Data Synchronization Service is configured to use 512 MB of RAM as heap memory.

You can increase this value by setting the environment variable `FUNAMBOL_DSSERVER_MEM_OPTS` to the desired value.

Example:

```
FUNAMBOL_DSSERVER_MEM_OPTS="-Xms1G -Xmx4G -XX:PermSize=64m -
XX:MaxPermSize=192m"
```

for using between 1 GB and 4 GB of memory.

The parameters

```
"-XX:PermSize=64m -XX:MaxPermSize=192m"
```

must not be changed if you don't know the effects they can have.

5.4.2 PIM Listener Service

By default, the PIM Listener Service is configured to use 256 MB of RAM as heap memory.

You can increase this value by setting the environment variable `FUNAMBOL_CTP_MEM_OPTS` to the desired value.

Example:

```
FUNAMBOL_CTP_MEM_OPTS="-Xms256M -Xmx1G"
```

for using between 256 MB and 1 GB of memory.

5.5 Synchronizing node clocks

In a cluster environment it is important that all nodes in the cluster have their system time synchronized. A common way to do this is by using Network Time Protocol (NTP, see [22]).

5.5.1 Installing NTP

To check if your Linux distribution already includes an NTP software package, execute the following command:

```
rpm -qa | grep -i ntp
```

If your distribution does not include NTP, you must first install it.

5.5.2 Checking that NTP is synchronized

NTP is pre-configured in some Linux distributions. If there is no firewall filtering your NTP traffic, then the NTP daemon may work out of the box, and no modifications to the configuration are needed. To check that the NTP daemon is running, execute the following command:

```
ntpq -c 'readvar 0'
```

Check the command line output for sync_ntp, which indicates that NTP is synchronized.

5.5.3 Configuring NTP

If NTP is not configured by default on the controller machine, edit the NTP configuration file `etc/ntp.conf` as instructed below to ensure that the node clocks have the same time value.

Note

There are many different ways to configure NTP: these instructions represent only the simplest possible solution. Refer, for example, to [22] and the official NTP documentation [23] for more details on the advanced configuration options.

Configure ntp.conf

1. Locate at least two NTP servers on your network

2. Save a copy of the original `etc/ntp.conf` configuration file:

   ```
   cd /etc

   cp ntp.conf ntp.conf.orig
   ```

3. Open the `etc/ntp.conf` configuration file for editing

4. Comment out all the following lines: server, peer, broadcast, and manycast client

5. Add a server line for each NTP server you are using

   ```
   server first.ntp.server
   server second.ntp.server
   ```

6. Save the configuration

7. The `ntp.conf` file is read when the NTP daemon is started: thus, you must restart NTP every time the configuration file is modified.

   ```
   /etc/init.d/ntpd restart
   ```

Note

The synchronization process normally takes a couple of minutes. You can check the current state using the `ntpq` command.

When configuring NTP, use at least two individual NTP servers to ensure failure tolerance.

5.6 Configuring OneMediaHub load balancing with Apache HTTP Server (`httpd`) and mod_cluster

Here following is described how to set up OneMediaHub in a cluster environment with a load balancing mechanism using the Apache HTTP Server (`httpd`) and a software component called mod_cluster (see http://www.jboss.org/mod_cluster for more details) that is an `httpd` module working as load-balancer.

mod_cluster is composed by a set of `httpd` modules and a set of Java libraries. The latter are already available in the OneMediaHub package, but the former, since they are not Java-based, must be downloaded from the mod_cluster website according to your server architecture, and installed in your `httpd` installation.

The instructions below apply to OneMediaHub v14 (or later). For previous versions refer to Section 5.6.5, “How to migrate OneMediaHub from mod_cluster v1.2.0 to mod_cluster v1.2.6”.

5.6.1 `httpd` requirements

The usage of the latest version of the `httpd` 2.2 stable branch is recommended, and the following modules must be enabled:

- `mod_proxy`
- `mod_proxy_ajp`
- `mod_proxy_http`

All these modules are available compiling `httpd` with the option `--enable-proxy`.

Also make sure to have set the directives for loading proxy modules. Usually they look like this:

```
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
LoadModule proxy_http_module modules/mod_proxy_http.so
```

5.6.2 Installing mod_cluster `httpd` modules

`httpd` modules can be obtained downloading dynamic libraries (mod_cluster modules for httpd) from http://mod-cluster.jboss.org/downloads/1-2-6-Final-bin (be sure to download the ones that match your `httpd` host architecture).

Important

mod_cluster v1.2.6 is the latest supported and certified version.

In order to install mod_cluster modules (considering *<httpd>* the directory where httpd is installed):

1. create the directory *<httpd>*/mod-cluster-modules
2. copy the following files (available in the dynamic libraries package) to *<httpd>*/mod-cluster-modules:
   - mod_advertise.so
   - mod_manager.so
   - mod_proxy_cluster.so
   - mod_slotmem.so

   Note

   The dynamic libraries package may contain other .so modules that must not be copied

5.6.3 Configuring OneMediaHub instances for running in a cluster

Any OneMediaHub instance in a cluster environment must be uniquely identifiable. In order to accomplish this goal, you have to set the environment variable FUNAMBOL_NODE_ID.

For example, you can run

```
export FUNAMBOL_NODE_ID="DS-01"
```

before starting the server. (Alternatively, you can set it in the .bashrc file of the user in charge of starting the server process, if the bash shell is in use).

Node identifiers must be uppercase and unique in all the OneMediaHub instances in your cluster and must has max lenght of 10 characters. For instance, you can use DS01, DS02, DS03, and so on.

As an other option, it is possible to set the attribute jvmRoute of the Engine element in *<root directory of your OneMediaHub installation>*/tools/tomcat/conf/server.xml. For instance:

```
<Engine name="Catalina" defaultHost="localhost" jvmRoute="DS01">
```

Note

Though this approach is suggested if you are running more than one instance of OneMediaHub on the same host, it causes your installation directories to be different.

5.6.3.1 Enabling mod_cluster

In order to enable mod_cluster in OneMediaHub, you have to edit *<root directory of your OneMediaHub installation>*/tools/tomcat/conf/server.xml commenting out the section about mod_cluster configuration (look for `mod-cluster configuration`). The section will look like this:

```
<Listener
 className="org.jboss.modcluster.container.catalina.standalone.ModCluste
rListener"
          advertise="false"
          proxyList="host1:6666,host2:6666,host3:6666"
          …
          …
          …
/>
```

In the `proxyList` attribute, you have to set the address and port number of your `httpd` installation(s).

Important

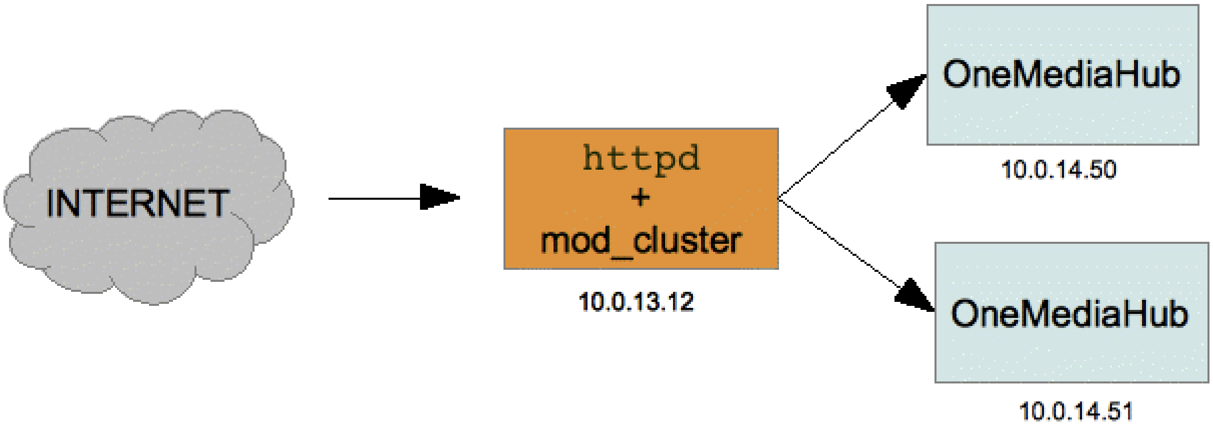
OneMediaHub must be restarted after this change.

5.6.4 Simple deployment architectures

5.6.4.1 Case 1

This section describes how to configure `httpd` and OneMediaHub for working as in the architecture depicted in Figure 5.1, "Single `httpd` with two OneMediaHub instances" (the IP addresses reported in the picture are just for example):

Figure 5.1. Single `httpd` with two OneMediaHub instances



Configuring `httpd`

In your `httpd` main configuration directory (usually `<httpd>/conf`) create the file `omh-mod-cluster.conf` with the following content:

```
LoadModule slotmem_module mod-cluster-modules/mod_slotmem.so
LoadModule manager_module mod-cluster-modules/mod_manager.so
LoadModule proxy_cluster_module mod-cluster-modules/mod_proxy_cluster.so
LoadModule advertise_module mod-cluster-modules/mod_advertise.so

Listen *:6666
<VirtualHost *:6666>

   <Directory />
      Order deny,allow
      Deny from all
      Allow from 10.0.14
   </Directory>

   KeepAliveTimeout 60
   MaxKeepAliveRequests 0

   ManagerBalancerName mycluster
   ServerAdvertise Off

   EnableMCPMReceive

</VirtualHost>

<Location /cluster-manager>
    SetHandler mod_cluster-manager
    Order deny,allow
    Deny from all
    Allow from 127.0.0.1
</Location>

ProxyStatus On
ProxyPassMatch /help !
ProxyPassMatch /server-status !
ProxyPassMatch /server-info !
```

In your `httpd` main configuration file (usually `<`*`httpd`*`>/conf/httpd.conf`) you have to add this directive to load the file described here above:

```
Include conf/omh-mod-cluster.conf
```

Configuring OneMediaHub to enable mod_cluster

In `<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/conf/server.xml` comment out the section about the mod_cluster configuration (look for `mod-cluster configuration`) and set the `proxyList` attribute:

```
<Listener
 className="org.jboss.modcluster.container.catalina.standalone.ModCluste
rListener"
          advertise="false"
          proxyList="10.0.13.12:6666"
          …
          …
          …
/>
```

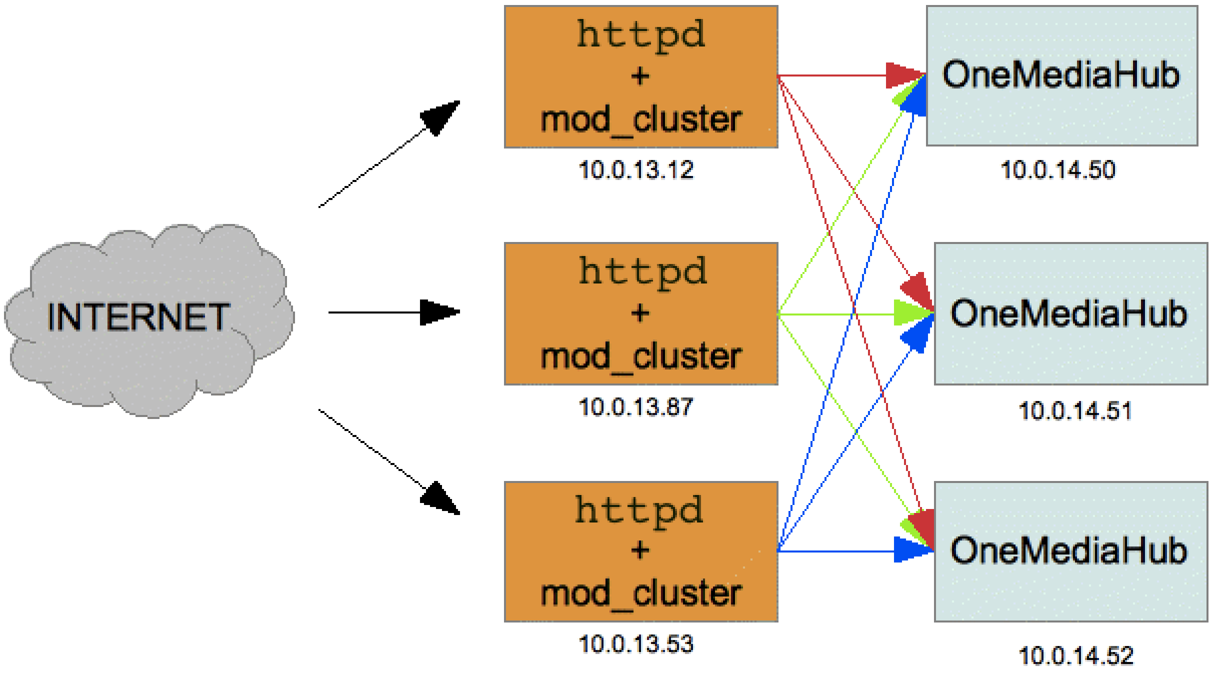
Important

OneMediaHub must be restarted after this change

5.6.4.2 Case 2

This section describes how to configure `httpd` and OneMediaHub for working as in the architecture depicted in Figure 5.2, "Three `httpd` with three OneMediaHub instances" (the IP addresses reported in the picture are just for example):

Figure 5.2. Three `httpd` with three OneMediaHub instances



Configuring `httpd`

In your `httpd` main configuration directory (usually `<httpd>/conf`) create the file `omh-mod-cluster.conf` with the following content:

```
LoadModule slotmem_module mod-cluster-modules/mod_slotmem.so
LoadModule manager_module mod-cluster-modules/mod_manager.so
LoadModule proxy_cluster_module mod-cluster-modules/mod_proxy_cluster.so
LoadModule advertise_module mod-cluster-modules/mod_advertise.so

Listen *:6666
<VirtualHost *:6666>

   <Directory />
      Order deny,allow
      Deny from all
      Allow from 10.0.14
   </Directory>

   KeepAliveTimeout 60
   MaxKeepAliveRequests 0

   ManagerBalancerName mycluster
   ServerAdvertise Off

   EnableMCPMReceive

</VirtualHost>

<Location /cluster-manager>
    SetHandler mod_cluster-manager
    Order deny,allow
    Deny from all
    Allow from 127.0.0.1
</Location>

ProxyStatus On
ProxyPassMatch /help !
ProxyPassMatch /server-status !
ProxyPassMatch /server-info !
```

Note

The same configuration file is applicable to all the `httpd` nodes without any change. Moreover, the file does not contain any information about the OneMediaHub nodes of the system. This means that you can add or remove a OneMediaHub node without changing anything in the `httpd` configuration.

Configuring OneMediaHub to enable mod_cluster

In *`<root directory of your OneMediaHub installation>`*`/tools/tomcat/conf/server.xml` comment out the section about the mod_cluster configuration (look for `mod-cluster configuration`) and set the `proxyList` attribute:

```
<Listener
 className="org.jboss.modcluster.container.catalina.standalone.ModClusterListener"
          advertise="false"
          proxyList="10.0.13.12:6666,10.0.13.87:6666,10.0.13.53:6666"
          …
          …
          …
/>
```

5.6.5 How to migrate OneMediaHub from mod_cluster v1.2.0 to mod_cluster v1.2.6

OneMediaHub v14 supports out of the box mod_cluster v1.2.6 that is the recommended version also for previous version of OneMediaHub (> v11.2.1). In order to migrate your installation, you have to update some libraries and the `httpd` modules.

5.6.5.1 Update of the `httpd`

`httpd` modules can be obtained downloading dynamic libraries (mod_cluster modules for httpd) from http://mod-cluster.jboss.org/downloads/1-2-6-Final-bin (be sure to download the ones that match your `httpd` host architecture).

In order to upgrade mod_cluster modules (considering `<httpd>` the directory where `httpd` is installed) copy the following files available in the dynamic libraries package to `<httpd>/mod-cluster-modules`:

Important

Make sure to stop `httpd` before copying the files

- `mod_advertise.so`
- `mod_manager.so`
- `mod_proxy_cluster.so`
- `mod_slotmem.so`

You should replace the existing ones.

5.6.5.2 Update of the OneMediaHub installation

In order to upgrade the mod_cluster libraries:

1. delete these files from `<root directory of your OneMediaHub installation>/tools/tomcat/lib/`
    - mod_cluster-container-catalina-1.2.0.Final.jar
    - mod_cluster-container-catalina-standalone-1.2.0.Final.jar
    - mod_cluster-container-spi-1.2.0.Final.jar
    - mod_cluster-container-tomcat7-1.2.0.Final.jar
    - mod_cluster-core-1.2.0.Final.jar
    - jboss-logging-jdk-2.1.1.GA.jar
    - jboss-logging-spi-2.1.1.GA.jar
2. download from http://www.jboss.org/mod_cluster/downloads/1-2-6-Final-bin the package `java bundles`
3. extract the package in a temporary directory and copy the following files (they are available in the `JbossWeb-Tomcat/lib` directory) to `<root directory of your OneMediaHub installation>/tools/tomcat/lib`:
    - `mod_cluster-container-catalina-1.2.6.Final.jar`
    - `mod_cluster-container-catalina-standalone-1.2.6.Final.jar`

- `mod_cluster-container-spi-1.2.6.Final.jar`
- `mod_cluster-container-tomcat7-1.2.6.Final.jar`
- `mod_cluster-core-1.2.6.Final.jar`
- jboss-logging.jar

4. in the file `<root directory of your OneMediaHub installation>/bin/funambol-server` replace

```
JAVA_OPTS="$JAVA_OPTS -Dorg.jboss.logging.Logger.pluginClass=
org.jboss.logging.jdk.JDK14LoggerPlugin"
```

with

```
JAVA_OPTS="$JAVA_OPTS -Dorg.jboss.logging.provider=jdk"
```

5.6.5.3 How to redirect HTTP traffic to HTTPS

You might want to force a redirect from HTTP to HTTPS so that nothing is accidentally sent unencrypted when communicating with the OneMediaHub server. To configure the Apache web server, follow these steps:

1. Check in the Apache `httpd.conf` configuration file that the module `rewrite` is loaded:

```
LoadModule rewrite_module modules/mod_rewrite.so
```

2. Add the following rules to the `VirtualHost` section (this also covers the case where no load balancer is deployed in front of the web server):

```
# to force https only
RewriteCond %{HTTP:X-Forwarded-Proto}=http
RewriteRule ^/?(.*) https://%{HTTP_HOST}/$1 [L,R]
RewriteCond %{HTTP:X-Forwarded-Proto}!.
RewriteCond %{HTTPS} !=on
RewriteRule ^/?(.*) https://%{HTTP_HOST}/$1 [L,R]
```

5.7 How to change the sync URL

If you wish to change the synchronization URL from `http://{your-host}:{your-port}/sync` to `http://{your-host}:{your-port}/{your-name}`, follow these 4 steps:

1. In `<root directory of your OneMediaHub installation>/config/Funambol.xml`, change:

```
<void property="serverURI">

  <string>http://{your-host}:{your-port}/sync</string>

</void>
```

to:

```
<void property="serverURI">
```

```
  <string>http://{your-host}:{your-port}/{your-name}</string> </void>
```

2. In *<root directory of your OneMediaHub installation>*`/portal/webapps/ROOT/WEB-INF/web.xml`, change:

   ```
   <filter-mapping>

     <filter-name>Sync Filter</filter-name>

     <url-pattern>/sync/*</url-pattern>

   </filter-mapping>
   ```

   to:

   ```
   <filter-mapping>

     <filter-name>Sync Filter</filter-name>

     <url-pattern>/{your-name}/*</url-pattern>

   </filter-mapping>
   ```

3. In *<root directory of your OneMediaHub installation>*`/portal/webapps/ROOT/html/devices/content.properties`, change:

   ```
   portal-uri=http://{your-host}:{your-port}/sync
   ```

   to:

   ```
   portal-uri=http://{your-host}:{your-port}/{your-name}
   ```

4. Sync Clients that have the /sync path built-in need to be substituted.

   Note

   > Not all names are a valid choice for `{your-name}`, as certain words are reserved (for example, you cannot choose `/me`, `/c`, `/devinfo` etc.) For a complete listing, please contact the Funambol Customer Support.

5.8 Setting the Portal URL in device configuration pages

Once the Portal is installed, it will be possible for users to download the OneMediaHub client App on their device. The link that will be provided needs to be configured according to the Portal URL.

To configure all the device configuration pages, edit the following file:

```
<root directory of your OneMediaHub installation>/tools/tomcat/webapps/
ROOT/html/devices/content.properties
```

In this file, change the value of the `{your-host}` property and set the correct Portal URI:

```
portal-uri=http://{your-host}:{your-port}/sync
```

Then, launch the script that updates the device configuration pages with the correct URI from the from the `<root directory of your OneMediaHub installation>/bin` directory:**`./update-content`**

5.9 How to install a patch

In order to install a patch to your OneMediaHub installation, follow these steps:

Warning

> If you want to be able to rollback a patch installation, follow the steps described at Section 5.9.1, “Rollback procedure” before proceeding.

1. Unpack the `.tgz` archive of the patch you wish to install, e.g. `patch-<patch identifier>.tgz`, in the root directory of your OneMediaHub installation

2. Go to the *`<root directory of your OneMediaHub installation>`*`/patch/`*`<patch identifier>/`* directory

3. Read the instructions provided in the `readme.txt` file carefully

4. Stop all OneMediaHub services

5. Launch installation of the patch using the command **`./install`**

6. Restart all OneMediaHub services

Note

> Some patches have an impact on the database and include SQL scripts which must be applied manually; please refer to the `readme.txt` file for detailed instructions

Note

> Patches need to be installed in ascending order; e.g. if you wish to install patch #3 for OneMediaHub, you need to first make sure that patches #1 and #2 have already been installed.

5.9.1 Rollback procedure

Important

> Before installing the patch, some steps must be executed to be able to later rollback the patch installation:
>
> 1. Make a backup of your current installation.

2. Make a dump of your database(s) or just of some tables, accordingly to the README file of the patch. If this step is not explicitly foreseen in the README file, it can be skipped.

Once the patch has been installed, to rollback it stop the services, delete the current installation, and restore the installation saved before as explained here above. Drop the current database(s)/tables and restore the old one(s) from the dump (this last point must be done only in case point 2 above was necessary.)

5.10 How to install clients

In order to install a new version of OneMediaHub client in your OneMediaHub installation, run this command:

```
<root directory of your OneMediaHub installation>/bin/install-
client <client-package-name.zip>
```

Please note that you may need to accept to overwrite existing files. No restart of OneMediaHub services is needed.

For example:

```
bin/install-client onemediahub-for-windows-x.y.z.zip
```

5.11 How to install a new Portal User Interface

In order to install a new version of OneMediaHub Portal User Interface in your OneMediaHub deployment, run this command:

```
<root directory of your OneMediaHub installation>/bin/install-portal-
ui <portal-ui-package-name.zip>
```

Note

Restart of OneMediaHub services is needed.

For example:

```
bin/install-portal-ui funambol-ajax-portal-X.Y.Z.zip
```

Warning

The old version of the Portal User Interface is deleted.

5.12 Using the Device Simulator Tool

The OneMediaHub Device Simulator Tool allows you to test the server simulating SyncML devices. It can be found inside the OneMediaHub-SDK package.

With this tool, it is possible to run one of the test suites provided and add new tests. It is also possible to configure the Device Simulator tool to run a whole set of tests without having to sync each of them manually, which could be very time-consuming.

5.13 Gathering information about the OneMediaHub environment

In order to collect information about the OneMediaHub environment running on a GNU/Linux system (e.g. current server version, list of installed patches) you can run the script:

```
<root directory of your OneMediaHub installation>/bin/gather-funambol-
info
```

which provides a list of useful information that can be used for debug purposes.

The output can be redirected to a file using the standard Unix output redirection path, for example:

```
<root directory of your OneMediaHub installation>/bin/gather-funambol-
info > /tmp/funambol_info.txt
```

5.14 Performance statistics

OneMediaHub collects and provides performance statistics according to the 3GPP TS 32.104 V4 technical specification (see [28]).

The performance values retrieved are described in the following table.

Property name	***Description***
Performance statistics	
AverageResponseTime	Average HTTP response time in milliseconds
AverageSyncTime	Average sync time (including the time spent in the client) in milliseconds
NumberOfRequests	Total number of HTTP requests
NumberOfCurrentRequests	Total number of requests the server is processing
NumberOfSyncs	Total number of performed syncs
AverageSyncLatency	Average time spent in the server during a sync (excl time spent in the client) in ms
MaxResponseTime	Max response time in milliseconds
Memory statistics	
TotalMemoryInit	Initial allocation of memory for the SW
TotalMemoryUsed	The amount of memory currently used. Used memory includes the memory occupied by all objects including both reachable and unreachable objects.
TotalMemoryCommited	The amount of memory guaranteed to be available for use by the JVM. The amount of committed memory may change over time. The Java virtual machine may release memory to the system and committed could be less than the amount of memory initially allocated at startup. Committed will always be greater than or equal to that used.

Property name	***Description***
TotalMemoryMax	Max memory available to the JVM
TotalMemoryFree	Free available memory
Thread statistics	
ThreadCountPeak	Max number of simultaneous active threads
ThreadCountLive	Current number of active threads

These values are retrieved by the OneMediaHub management tool perf-tool and written in an XML log file as outlined in the 3GPP specifications.

The perf-measure tool has the following syntax:

```
<root directory of your OneMediaHub installation>/tools/management/bin/
perf-measure [--install min] JMX_PORT [MEASURES_DIR]
```

where:

`JMX_PORT` is the port that the OneMediaHub service is listening to for the JMX interface (e.g. 8101). Note that the instrumented server will be on the local host (e.g. localhost:8101).

`MEASURES_DIR` is an optional directory where the performance stats files will be stored. It defaults to *`<root directory of your OneMediaHub installation>`*`/logs/3GPP`. When invoked, the tool connects to the server on the given port, retrieves the statistics and generates a file in the measures directory containing the values read from the server. At each invocation a new file is generated (in other words, each file contains only one sample).

See below for the `–install` option.

Performance statistics can be generated on a regular basis. To do so, the script must be installed as a `crontab` entry with the user running the OneMediaHub service.

To install the `crontab` entry launch the command:

```
<root directory of your OneMediaHub installation>/tools/management/bin/
perf-measure --install MIN JMX_PORT [MEASURES_DIR]
```

Where:

`MIN` is the number of minutes of the granularity period.

5.14.1 Examples

Perfomance measurement example

```
<?xml version="1.0"?>

<?xml-stylesheet type="text/xsl" href="MeasDataCollection.xsl" ?>

<!DOCTYPE MeasDataCollection SYSTEM "MeasDataCollection.dtd" >

<mdc xmlns:HTML="http://www.w3.org/TR/REC-xml">
```

```
<mfh>
<ffv>1</ffv>
<sn>System=Funambol,RNC=123</sn>
<st>RNC</st>
<vn>Funambol Inc.</vn>
<cbt>20100528140211</cbt>
</mfh>
<md>
<neid>
<neun>RNC Funambol</neun>
<nedn>System=Funambol,RNC=123</nedn>
</neid>
<mi>
<mts>20100528140711</mts>
<gp>300</gp>
<mt>NumberOfRequests</mt>
<mt>NumberOfCurrentRequests</mt>
<mt>NumberOfSyncs</mt>
<mt>AverageSyncLatency</mt>
<mt>AverageSyncTime</mt>
<mt>MaxResponseTime</mt>
<mt>AverageResponseTime</mt>
<mt>TotalMemoryInit</mt>
<mt>TotalMemoryUsed</mt>
<mt>TotalMemoryCommited</mt>
<mt>TotalMemoryMax</mt>
<mt>TotalMemoryFree</mt>
```

```
<mt>ThreadCountPeak</mt>

<mt>ThreadCountLive</mt>

<mv>

<moid>Cell=1</moid>

<r>11038</r>

<r>0</r>

<r>2348</r>

<r>4870.6</r>

<r>24658.82</r>

<r>71566</r>

<r>1176.41</r>

<r>97323264</r>

<r>211044816</r>

<r>365158400</r>

<r>703528960</r>

<r>492484144</r>

<r>85</r>

<r>83</r>

<sf>FALSE</sf>

</mv>

</mi>

</md>

<mff>20100528140711</mff>

</mdc>
```

Crontab example

Set granularity period to 5 minutes:

```
*/5 * * * * /opt/Funambol.comed/tools/management/bin/perf-measure 8101
 2>&1 >/dev/null
```

5.15 Event tracking and reporting

The following is the definition of the data that is saved in the database in order to produce statistical reports. Events are stored in the OneMediaHub database, in the `fnbl_event` table.

The data saved in the `fnbl_event` table has the following form:

eventTime
The time when the Event object has been triggered

eventType
A string describing the event type

loggerName
The name of the logger used to trigger the event

userName
The name of the user the event refers to

deviceId
the device ID

sessionId
The ID of the session this event is triggered within

source
The URI of the sync source handling which the event has been triggered

message
A short description of this event

syncType
A value describing the type of the performed sync (`200`, `201`, and so on)

numTransferredItems
The total number of transferred items (both at client and server side)

numAddedItems
The total number of added items (both at client and server side)

numDeletedItems
The total number of deleted items (both at client and server side)

numUpdatedItems
The total number of updated items

duration
A value representing how long the synchronization process took

originator
The source component that caused this event to be triggered

statusCode
The status code that will be returned to the client as status of the synchronization process

error
A flag that is set to `true` if the event represents an error, and to `false` otherwise

The keys for searching the data in the database will be:

username
matches the username as currently used in the user database

event type
matches the event type as described below

5.15.1 Antivirus

Antivirus events occur after that a new file is uploaded to the OneMediaHub server with antivirus enabled.

Antivirus event types

- `START_ANTIVIRUS_CHECK`

  Triggers when everything is correctly configured and the antivirus task starts

- `END_ANTIVIRUS_CHECK`

  Triggers when everything completed correctly

- `AV_VIRUS_FOUND`

  Triggers for each infected item found

- `AV_MAX_FILES_SCANNED`

  Triggers when the threshold of maximum number of files to be scanned is reached (will be triggered before start)

- `AV_FAILURE`

  Triggers when something goes wrong or is not properly configured (antivirus provider not set, not all items validated, incorrect provider class, database access exceptions, antivirus execution exceptions)

- `AV_FILE_NOT_SCANNED`

  Triggers when an item was not scanned (should be followed by `AV_FAILURE`)

5.15.2 Media

Media events occur when new files are uploaded to the OneMediaHub server.

Media event types

- `START_MEDIA_UPLOAD`

  Triggers when a new item is uploaded to the Portal (will result in an error if the upload is rejected)

- `END_MEDIA_UPLOAD`

  Triggers when an item finished to be uploaded to the Portal (will result in an error if something goes wrong)

5.15.3 Push flow

Push flow events occur when the OneMediaHub server generates notifications for the devices.

Push flow event types

- `DS_PUSH_REQ`

  Triggers when a notification to all devices is sent (can result in an error)

- `DS_PUSH_SENT`

  Triggers when a notifiable device is found prior to an initiated `DS_PUSH_REQ`. Otherwise, it results in an error

5.15.4 Sync

Sync events occur when the OneMediaHub server performs synchronizations.

Sync event types

- `START_SYNC`

  Triggers whenever a principal requests a synchronization (can result in an error if the database source is not found)

- `END_SYNC`

  Triggers when the synchronization has successfully completed (can result in an error if something goes wrong with the synchronization)

5.15.5 Sync session

Sync session events occur when the OneMediaHub server processes a correct SyncML session.

Sync session even types

- `START_SYNC_SESSION`

  Triggers when a synchronization session starts (can result in an error if the authentication fails)

- `END_SYNC_SESSION`

  Triggers when a synchronization session ends (can result in an error if the session does not end successfully)

5.15.6 Transcoding

Transcoding events occur when a new video file is uploaded to a OneMediaHub server with transcoding enabled.

Transcoding event types

- `CREATE_TRANSCODING_JOB`

  Triggers when a new transcoding job is created (can result in an error if something goes wrong with the creation or queuing of the job)

- `START_TRANSCODING_JOB`

  Triggers when a queued job starts

- `END_TRANSCODING_JOB`

  Triggers when a queued job ends (can result in an error if the job fails)

5.15.7 Events information by database columns

Table 5.1. Events and columns

Event → Column ↓	Antivirus	Media	Push flow	Sync	Sync session	Transcoding
event_time	X	-	X	-	-	X
event_type	X	X	X	X	X	X
logger_name	X	-	X	-	-	X
username	X	X	X	X	X	X
device	X	X	X	X	X	-
sessionid	-	X	X	X	X	-
source	X	X	X	X	-	X
message	X	X	X	X	X	X
sync_type	-	-	-	X	-	-
num_transferred_items	-	-	-	-	-	-
num_added_items	-	-	-	X	-	-
num_deleted_items	-	-	-	X	-	-
num_updated_items	-	-	-	X	-	-
originator	X	X	X	X	X	X
status_code	-	-	-	X	X	-
error	X	X	X	X	X	X
duration	X	X	-	X	X	-

5.16 Configuring the Stuck Thread Detection valve

This is an internal Tomcat component (*valve*) that allows to detect requests that take a long time to process and which might indicate that the thread that is processing it is stuck.

If accordingly configured, the valve can automatically kill requests that are taking too much time to be processed.

If a different configuration is required, locate the file `<`*`root directory of your OneMediaHub installation`*`>/tools/tomcat/conf/server.xml` and edit the following row:

```
<Valve className="org.apache.catalina.valves.StuckThreadDetectionValve"
 thresholdInMins="30" kill="true" useStop="false" />
```

Configuration parameters

- *`thresholdInMins`*: threshold in minutes beyond which the thread is marked as stuck (default: `30`)
- *`kill`*: automatically kill stuck threads (default: `true`)

- *useStop*: (not safe) use Thread.stop() (default: false)

Configure core logging for Email notification

It is possible to receive an Email when the Stuck Thread Detection valve notifies or kills a request. Edit the *<root directory of your OneMediaHub installation>*/tools/tomcat/conf/logging.properties file and uncomment the SMTPHandler section. The logging.properties file contains a handlers property. The handlers property specifies a list of comma-separated handler classes.

The following example declares two handlers, a ConsoleHandler and an SMTPHandler:

```
handlers=java.util.logging.ConsoleHandler,smtphandler.SMTPHandler.level=
 FINEST
java.util.logging.ConsoleHandler.level=FINEST
java.util.logging.ConsoleHandler.formatter=java.util.logging.SimpleForma
tter
smtphandler.SMTPHandler.level=WARNING
smtphandler.SMTPHandler.smtpHost=smtp.foobar.com
smtphandler.SMTPHandler.to=neo@foobar.com
smtphandler.SMTPHandler.from=appserver@server3
smtphandler.SMTPHandler.subject=[SMTPHandler] Application message
smtphandler.SMTPHandler.bufferSize=512
smtphandler.SMTPHandler.formatter=java.util.logging.SimpleFormatter
```

The SMTPHandler has seven customizable parameters

- *level*
- *smtpHost*
- *to*
- *from*
- *subject*
- *bufferSize*
- *formatter*

You should tailor their values as needed for your application environment. For more information about java.util.logging configuration, look up Oracle Java SE platform documentation ([4]).

5.17 How to enable and disable devices

In order to enable or disable a specific device, the system administrator must execute the following database queries:

- To enable a device:

  ```
  update fp_model set active=true where id=<device id>
  ```

- To disable a device:

  ```
  update fp_model set active=false where id=<device id>
  ```

where *<device id>* is the unique identifier for each device, and can be obtained by running a database query based on the device name and manufacturer. For example, if searching for the BlackBerry Storm's device ID, the query string would be:

```
select id from fp_model where name like '%Storm'
```

5.18 How to disable clients offered in mobile portal

In *<root directory of your OneMediaHub installation>*`/config/portal/portal-ext.properties`, it is possible to disable the clients that are offered after device detection in the mobile portal:

Property	Client to deactivate
`sp.syncportal.device.url.bbPlugin`	BlackBerry (OS version < 4.7) Sync Client
`sp.syncportal.device.url.bbPlugin47`	BlackBerry (OS version 4.7) Sync Client
`sp.syncportal.device.url.bbPlugin6`	BlackBerry (OS version 6) Sync Client
`sp.syncportal.device.url.iPhoneApp`	iOS app for iPhone
`sp.syncportal.device.url.androidApp`	Android app

In order to disable the clients, the properties above should be empty or removed.

5.19 Marketing KPI

OneMediaHub provides a simple script for creating and delivering via email some marketing Key Performance Indicator (KPI) values.

KPI can be collected weekly or monthly, the values are stored in the `fnbl_marketing_kpi` table in the reporting database and are defined as follows:

Report date
the date when the reporting record has been generated

New users
users registered (and activated) since previous report date

Sync users
users who interacted with the server using a client (excluding the Web Portal) since previous report date

Deleted users
number of deleted users since previous report date

Total number of media users
overall number of users with at least one media file

Registered users
overall number of registered users

Paying users
overall number of users with no free subscription

Free users
overall number of users with free subscription

SyncML synchronisations
number of SyncML synchronisations

API synchronisations
number of API synchronisations

Mobile users
users who interacted with the server using a mobile device since previous report date

Desktop users
users who interacted with the server using a desktop client since previous report date

Web users
users who interacted with the server using a web client since previous report date

Contact Users
users who added, modified or deleted at least one contact since previous report date

Calendar Users
users who added, modified or deleted at least one event since previous report date

Media Users
users who added, modified or deleted at least one media item since previous report date

Total used storage
total used storage

Avg storage per user
average storage per media user

Total used storage of paying users
total storage used by paying users

Avg storage per paying user
average storage per paying media user

Total used storage of free users
total storage used by not paying media users

Avg storage per free user
average storage per not paying media user

Mac OS app downloads
number of Mac OS app client downloads since previous report date

Windows app downloads
number of Windows PC app client downloads since previous report date

Total users in Families
total number of users with a family

Users with posted items in Families
number of users that have posted to the family cloud since previous report date

New Sync Users (set 2)
number of new active users since previous report date

Android users (set 2)
number of users of Android OS since previous report date

Ios users (set 2)
number of users of iOS OS since previous report date

Blackberry users (set 2)
number of users of Blackberry OS since previous report date

Windows Phone users (set 2)
number of users of Windows 8 OS since previous report date

Windows Desktop users (set 2)
number of Windows desktop client users since previous report date

Mac users (set 2)
number of MAC desktop client users since previous report date

Total storage per picture (set 2)
total used storage for pictures

Total storage per video (set 2)
total used storage for videos

Total storage per music (set 2)
total used storage for music

Total storage per file (set 2)
total used storage for documents

Total media items per paying users (set 2)
total number (quantity) of stored data items (pics/video/music/docs) by paying users

Total media items per free users (set 2)
total number (quantity) of stored data items (pics/video/music/docs) by free users

Total storage per mobile apps (set 2)
total volume [Gb] of uploaded files by mobile apps

Total storage per desktop clients (set 2)
total volume [Gb] of uploaded files by desktop clients

Total storage per Web (set 2)
total volume [Gb] of uploaded files by web clients

Total shared items (set 2)
total number of items successfully shared

Total shared items for mobile (set 2)
total number of items of items shared from mobile app

Total shared items for web (set 2)
total number of items of items shared from the web portal

Total users using sharing (set 2)
total number of items of unique users sharing items

Total shared items for facebook (set 2)
total number of items uploaded to Facebook

Total shared items for filckr (set 2)
total number of items uploaded to Filckr

Total shared items for mail (set 2)
total number of items sent by email

Total shared items for picasa (set 2)
total number of items uploaded to Picasa

Total shared items for twitter (set 2)
total number of items uploaded to Twitter

Total shared items for youtube (set 2)
total number of items uploaded to Youtube

5.19.1 How to use

The script for collecting and sending KPI values is `marketing-kpi` and it is located under `<`*`root directory of your OneMediaHub installation`*`>/bin` directory.

It should be run once per week (with option `-w`) for generating weekly stats and once per month (with option `-m`) for generating monthly stats.

Each time is run, KPI values are stored in the database and a comma-separated values (CSV) file is sent to the specified recipients.

Script:

```
marketing-kpi <-w|-m> -r recipients [-s mail_subject] [-set set_number]
```

The possible options are:

`-w`
collects and sends weekly KPI

`-m`
collects and sends monthly KPI

`-r recipients`
email report recipients (comma separated)

`-s mail_subject`
the subject of the email. By default is 'Marketing KPI (weekly)' for weekly KPI and 'Marketing KPI (monthly)' for monthly KPI. Note that '(weekly)' or '(monthly)' is always added to the specified subject.

`-set set_number`
selects the data set to show in the report. Default is set 1.

Example 1: email subject is "Cloud Production KPI (weekly)"; 'weekly' is always added to the subject.

```
./marketing-kpi -r my@address.com,other@address.com -w -s "Cloud
 Production KPI"
```

Example 2: email subject is "Cloud Production KPI (monthly)"; 'monthly' is always added to the subject.

```
./marketing-kpi -r my@address.com,other@address.com -m -s "Cloud
 Production KPI"
```

Example 3: the report will contain the set 2 columns too.

```
./marketing-kpi -r my@address.com,other@address.com -m -s "Cloud
 Production KPI" -set 2
```

The specified recipients will be put in BCC to the sent email.

Examples of cronjobs definition (weekly every Sunday and monthly every first day of each month):

```
0 0 * * 0 /opt/onemediahub/bin/marketing-kpi -w -r
 my@address.com,other@address.com -s "Cloud Production KPI"
0 0 1 * * /opt/onemediahub/bin/marketing-kpi -m -r
 my@address.com,other@address.com -s "Cloud Production KPI"
```

5.20 Import users tool

OneMediaHub provides a tool for importing and performing maintenance batch tasks on users, based on an input batch file.

This tool uses web service invocations to communicate with a OneMediaHub server, executing the necessary calls to perform the maintenance action. Each command will have an output status code determining the processing result.

The command to run the tool can be found at `<`*`root directory of your OneMediaHub installation`*`>/bin/import-users`

5.20.1 Pre-conditions

The tool expects two precondition configurations on the OneMediaHub server: user subscriptions are enabled, and user phone number are unique. This is achieved by configuring the following keys in `<`*`root directory of your OneMediaHub installation`*`>/config/portal/portal-ext.properties`:

- `subscription.enabled=true`
- `phone-number-uniqueness=true`

Also, the tool communicates with OneMediaHub via Server API, using the system realm. Therefore, the tool requires an enabled portal administrator user with valid credentials to operate successfully.

5.20.2 User command batch file

The tool reads a CSV file containing the user commands to process. This file must obey the following rules:

- The first row of the new .CSV file must be filled with the column names as defined in the table below;
- The order of the columns is fixed and also as defined in the table below;
- Columns in .CSV file are separated by semicolon (;) and semicolon is also used for the end of each row; All the column are mandatory;
- Each row ends with a CRLF;

- Use UTF-8 code page without BOM;

The batch file has the following structure:

Field Name	***Description***	***Example***	***Data Type***
OrderType	User command operation type. See OrderType table for more information	1	Number(2)
ContractNumber	Unique user identifier	54321	VARCHAR(255)
Event_Date	Date of occurring event. This field isn't validated by the tool	2013-02-05-132555	Date (yyyy-mm-dd-hh24miss)
PhoneNumber	Phone number associated to the user	390382213141	VARCHAR(75)
EMAIL	Email address associated to the user	test@acme.com	VARCHAR(75)
Brand_ID	Unique server brand identifier; this field will be used to verify the correct source of the data	omh	VARCHAR(75)
Product_ID	Subscription ID[a] demo 150 MB standard 2 GB premium 5GB ...	demo	Possibly 3 comma-separated values
UserType	User-level communication channel preference for the user. The communication method should only be used when the user-level communication channel is configured. Valid values: SMS – The user will receive all communications by SMS EMAIL – The user will receive all communications by e-mail MIXED – The user will receive the initial "reset	EMAIL	VARCHAR(5)

Field Name	*Description*	*Example*	*Data Type*
	password" message by SMS, and all other communications by e-mail		

[a] The list of the subscriptions is configurable in the server `portal-ext.properties` configuration file.

5.20.3 Usage

The import users tool must be executed using the following command:

```
<root directory of your OneMediaHub installation>/bin/import-users -
u <ws_admin_username> -p <ws_admin_secret> -i <input_directory> -o
<output_directory>
```

Options:

`-u` **:**
OneMediaHub administrator user name

`-p` **:**
OneMediaHub administrator secret

`-i` **:**
input directory with the CSV files containing user orders to process will be read from

`-o` **:**
output directory where the processing reports will be written to

The input directory is scanned for CSV files containing import commands, and all files that were found are moved into the output directory. The tool will create a copy in the output folder for each CSV input file found, appending `.result` to the input file name and a status code at the end of each line.

5.20.4 Commands

The following table contains the information on available order types the tool is able to process:

ID	*OrderType*	*Description*	*Notes*
1	Activate	Account is created	The system sends a notification to the end user with a link to reset her password
2	Deactivate	Disable the user	The user will be disabled; the user cannot access to the service
3	Suspend	Account is in the payment_required status	during the grace period the user has sort of “read-only” mode: he can access to the server and download content but he cannot upload any media content
4	Unsuspend	Account is to be unblocked for service access. (active status)	
5	Reset	Account is deleted; and then recreated	

ID	***OrderType***	***Description***	***Notes***
6	Change	User changes MSISDN or phone number	Subscriber changes MSISDN or phone number (login); subscriber is requested to use his new MSISDN for further login
7	Delete	User is deleted	
8	Migrate	User changes Subscription	User is migrated to a new subscription

5.20.5 Configuration

There is a logging configuration file for the import tool, located in the `<root directory of your OneMediaHub installation>/config` directory, named `log4j-import-users-tool.xml`. The relevant logging level can be updated to expose a higher level of logging. The log is stored in `<root directory of your OneMediaHub installation>/logs/import-users-tool/import-users-tool.log` file.

Apart from this, the tool requires the server to be configured in order to be executed, that is, a valid `portal-ext.properties` file with the following properties set:

- `user-import-tool.device.countrya2`
- `user-import-tool.device.carrierid`
- `user-import-tool.device.modelid`
- `user-import-tool-preprocessor-class`
- `sp.syncportal.url`
- `sapi.baseurl`

5.20.6 Status codes

After processing an input CSV file, the resulting output file will contain a copy of the input file, with an appended StatusCode column, containing a code that represents the result of the command processing. The following table defines the status codes.

code	**description**
`0`	OK
`100`	Generic error
`101`	User does not exist
`103`	User msisdn already exists
`200`	Invalid OrderTypeId
`201`	OrderTypeId not supported yet
`202`	Invalid BrandId
`204`	The unsuspension can only be done if the user was suspended before.
`206`	An activated user cannot be activated again.
`208`	Operation cannot be performed on a deactivated user.
`209`	Operation cannot be performed on a suspended user.

code	description
`301`	Invalid Product_ID
`302`	Invalid contract number
`303`	Invalid event date
`304`	Invalid msisdn
`305`	Invalid email address
`306`	Invalid user type
`400`	Network error
`401`	Empty response from server
`402`	HTTP error response from server
`403`	HTTP invalid response from server
`404`	Received a SAPI error code response from server
`500`	User provisioned, notification not sent

5.21 User reporting tool

OneMediaHub provides a script for extracting all the registered users present in the system. The data are structured as a CSV file defined as follows:

`userId`
User identifier

`msisdn`
User's phone number, if present

`email`
User's email address

`userStatus`
User's satus (active or canceled)

`planName`
Currently associated subscription plan

`planStatus`
Status of the currently associated subscription plan

`creationDate`
User creation date

`lastMigrationDate`
Date of the last migration of the subscription plan

`firstActiveDate`
User creation date

`lastActiveDate`
Date of last login

`numberOfDaysActive`
Number of days between `firstActiveDate` and `lastActiveDate`

5.21.1 How to use

The script is users-reporting and it is located under `<root directory of your OneMediaHub installation>/bin` directory.

The script requires that the program 'Mutt' is installed on the machine.

The script can send the report by email, specifying an email address or a list separeted with comma of email adrresses and the data can be encrypted in a protected by password zip file.

Script:

```
user-reporting -r recipients [-s mail_subject] [-p] [-z password]
```

Options:

`-r`
: mail report recipients (comma separated)

`-s`
: the subject of the mail. By default is 'users-report.csv'

`-p`
: print report to standard output

`-z`
: zip and password protect report

Example 1: Sends the plain CSV report via email to admin@funambol.com

```
./bin/users-reporting -r admin@funambol.com -s "registered users report"
```

Example 2: Sends the zip encrypted CSV report via email to admin@funambol.com, support@funambol.com

```
./bin/users-reporting -r admin@funambol.com,support@funambol.com -s
 "registered users report" -z mysecret
```

5.22 How to enable OneMediaHub proxy support

To enable proxy support for OneMediaHub you need to set the following environment properties according to the proxy details:

- *`PROXY_HOST`* - the http proxy host domain
- *`PROXY_PORT`* - the proxy port
- *`PROXY_CHUNKING_SUPPORT`* - `true` or `false` values, if the proxy you are using supports chunking

Important

> At the moment, OneMediaHub does not support a proxy with authentication.

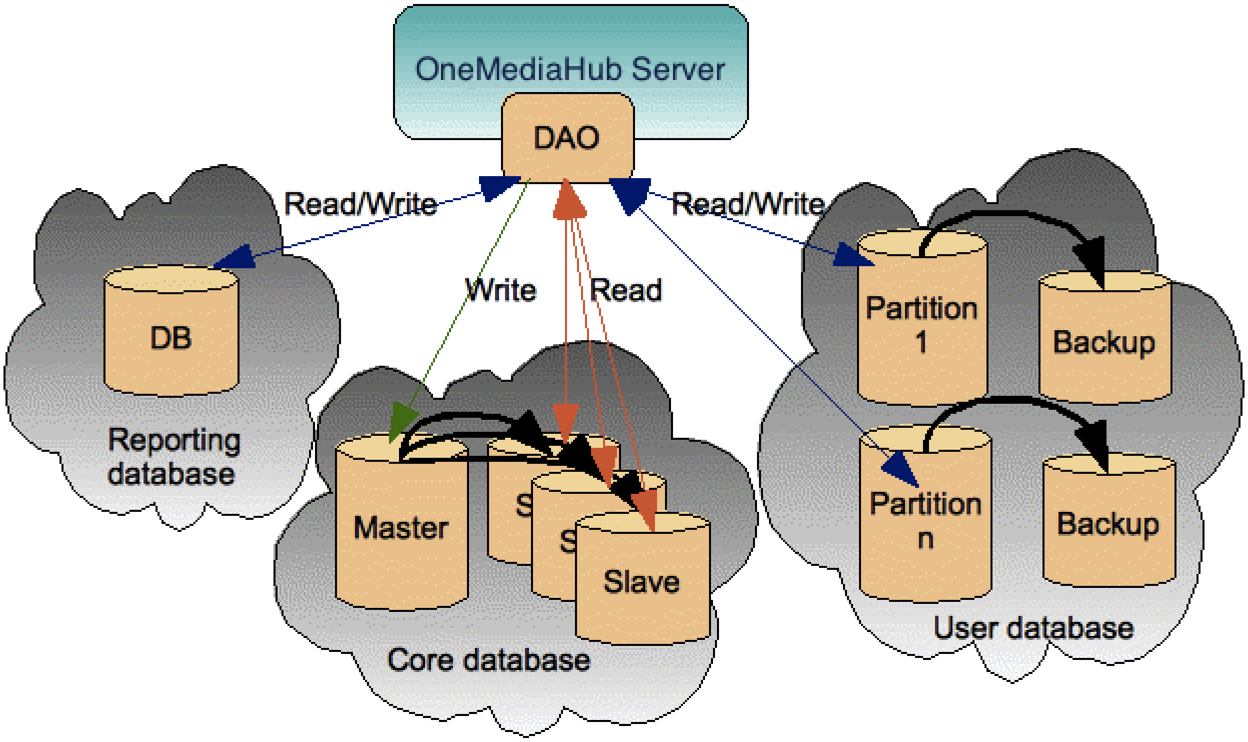
Example:

```
PROXY_HOST=192.168.0.10
PROXY_PORT=3128
PROXY_CHUNKING_SUPPORT=true
```

Chapter 6. Database partitioning

The OneMediaHub is designed to avoid single points of failure and to provide high availability at the database level. In order to guarantee these features, the OneMediaHub's data layer is structured as illustrated in Figure 6.1, “Database access layer”.

Figure 6.1. Database access layer



The database is logically split in three: the *Core* database, the *Reporting* database, and the *User* database.

The *Core* database contains the subset of information required for the correct functioning of the server; the *User* database contains user related information; the *Reporting* database contains information about events triggered by different components (like the Data Synchronization Service and so on) for reporting purposes.

The *Core* database stores data that must not be scaled according to the number of users; the data is scaled using a master/slave architecture where a master is asynchronously replicated on many slaves. Write operations in the *Core* database are done on the master while read operations are done on the slaves.

The *User* database stores data that needs to be scaled according to the number of users and that is partitioned in multiple databases. Each partition stores data relating to a subset of users. Each partition could be backed up through asynchronous replication on a backup slave machine but the readings are not spread out on the slave; this means that all connections will be read/write.

The tables in the *User* database are described at Section E.2, “OneMediaHub User”.

6.1 Creating core and user databases

The procedure for creating core, user and reporting databases is similar to the one described inSection 3.4, “Database configuration”, but different SQL scripts must be used. The SQL files to use are listed below:

File location	***Description***
`<root directory of your OneMediaHub installation>/portal/database/mysql/cared-coredb-mysql.sql`	Script for core database creation
`<root directory of your OneMediaHub installation>/portal/database/mysql/cared-userdb-mysql.sql`	Script for user database creation
`<root directory of your OneMediaHub installation>/portal/database/mysql/cared-reportingdb-mysql.sql`	Script for reporting database creation

6.2 Separating the user database

If you want to separate the user database from the core, you have two different possibilities:

1. edit the file `<root directory of your OneMediaHub installation>/config/com/funambol/server/db/jdbc/fnbluser.xml` setting the property `url`. This is done adding this code:

```
<!-- The connection URL -->

<void method="setProperty">

    <string>url</string>

    <string>jdbc:mysql://db-server/userdb?characterEncoding=UTF-8</
string>

</void>
```

   At the end, the `fnbluser.xml` could look like:

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

<java version="1.6.0" class="java.beans.XMLDecoder">

 <object
 class="com.funambol.server.db.RoutingDataSourceConfiguration">

   <!-- The connection URL -->

   <void method="setProperty">

     <string>url</string>

     <string>jdbc:mysql://db-server/userdb?characterEncoding=UTF-8</
string>
```

```
  </void>

  <void property="partitioningCriteria">

    <object class="com.funambol.server.db.BucketPartitioningCriteria"
>

        <void property="hasher">

            <object class="com.funambol.server.db.BoundedHasher">

                <void property="maxValue">

                    <int>10000000</int>

                </void>

            </object>

        </void>

    </object>

  </void>

  <void property="partitionConfigurationLoader">

    <object
class="com.funambol.server.db.DBPartitionConfigurationLoader" >

    </object>

  </void>



</object>

</java>
```

2. change the information in the `fnbl_partition` table (stored in the core database.) For instance you can simply perform this update:

   ```
   update fnbl_partition set url='jdbc:mysql://db-server/userdb?
   characterEncoding=UTF-8' where name='partition-0';
   ```

Note

User database configuration inherits all the parameters (like username, password and connection pool configuration) defined in the main database configuration file (`<`*`root directory of your OneMediaHub installation`*`>/config/com/funambol/server/db/db.xml)`. In case you need to specify different values, you can set them in the `fnbluser.xml` or in the `fnbl_partition` table.

6.3 Separating the reporting database

If you want to separate the reporting database from the core, you have to edit the file `<root directory of your OneMediaHub installation>/config/com/funambol/server/db/jdbc/fnblreporting.xml` setting the property 'url'. This is done adding this code:

```
<!-- The connection URL -->

<void method="setProperty">

    <string>url</string>

    <string>jdbc:mysql://db-server/reportingdb?characterEncoding=UTF-8</
string>

</void>
```

At the end, the `fnblreporting.xml` could look like:

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

<java version="1.6.0" class="java.beans.XMLDecoder">

 <object class="com.funambol.server.db.DataSourceConfiguration">

  <void method="setProperty">

   <string>url</string>

   <string>jdbc:mysql://db-server/reportingdb?characterEncoding=UTF-8</
string>

  </void>

 </object>

</java>
```

Note

Reporting database configuration inherits all the parameters (like username, password and connection pool configuration) defined in the main database configuration file (`<root directory of your OneMediaHub installation>/config/com/funambol/server/db/db.xml`). In case you need to specify different values, you can set them in the `fnblreporting.xml` file.

6.4 Partitioning the user database

By default, the user database is configured to use one partition only.

The way user data is partitioned is determined by the tables `fnbl_bucket` and `fnbl_partition` (see description at Section E.1.3, “fnbl_bucket” and Section E.1.27, “fnbl_partition”).

Given the username, the steps to identify the partition to use are:

1. compute the bucket of the username. The bucket is a positive integer value between 0 and 9999999 and it is computed as `abs(hashcode(username)) % 10000000`
2. given the bucket, the `fnbl_bucket` table is used to identify the name of the partition to use; this is done by searching for the entry whose bucket range contains the specified bucket value
3. given the partition name from the previous step, the `fnbl_partition` table is used to retrieve partition information such as the URL, username, password to use in creating the connection

Note

> To avoid impacting on performance, the information contained in the previous tables is read only once during the initialization phase.

By default OneMediaHub is configured to have all the users in the bucket interval 0-9999999 on partition-0 (defined in `fnbl_partition`).

To have more than one partition, you have to split the bucket interval in the `fnbl_bucket` table and to create new partitons in the `fnbl_partition` table.

For instance, to have 3 different partitions, you can split the buckets in three intervals setting in `fnbl_bucket` these values:

Table 6.1. Partitioning the user database - example of 3 partitions, how to set fnbl_bucket

low_bucket	high_bucket	partition_name	active	migrating
0	3333332	partition-0	Y	N
3333333	6666665	partition-1	Y	N
6666666	9999999	partition-2	Y	N

Then, you have to define the partitions in fnbl_partition:

Table 6.2. Partitioning the user database - example of 3 partitions, how to set fnbl_partition

name	url
partition-0	jdbc:mysql://db-server-1/userdb_01?characterEncoding=UTF-8
partition-1	jdbc:mysql://db-server-2/userdb_02?characterEncoding=UTF-8
partition-2	jdbc:mysql://db-server-3/userdb_03?characterEncoding=UTF-8

Note that there are not constraints on the partition url so that for instance you can have three different partitons on the same database server:

Table 6.3. Partitioning the user database - example of 3 partitions, how to set fnbl_partition

name	url
partition-0	jdbc:mysql://db-server/userdb_01?characterEncoding=UTF-8
partition-1	jdbc:mysql://db-server/userdb_02?characterEncoding=UTF-8
partition-2	jdbc:mysql://db-server/userdb_03?characterEncoding=UTF-8

This configuration gives the advantage of moving easily the databases on different MySQL server instances when the load grows. For instance, in the case you need to have partition-2 on a different box, you can just move the database 'userdb_03' on a new MySQL instance (how to move a single database on a different instance is out of the scope of this guide) and change fnbl_partition in this way:

Table 6.4. Partitioning the user database - example of 3 partitions, how to set fnbl_partition

name	url
partition-0	jdbc:mysql://db-server/userdb_01?characterEncoding=UTF-8
partition-1	jdbc:mysql://db-server/userdb_02?characterEncoding=UTF-8
partition-2	jdbc:mysql://db-server-abc/userdb_03?characterEncoding=UTF-8

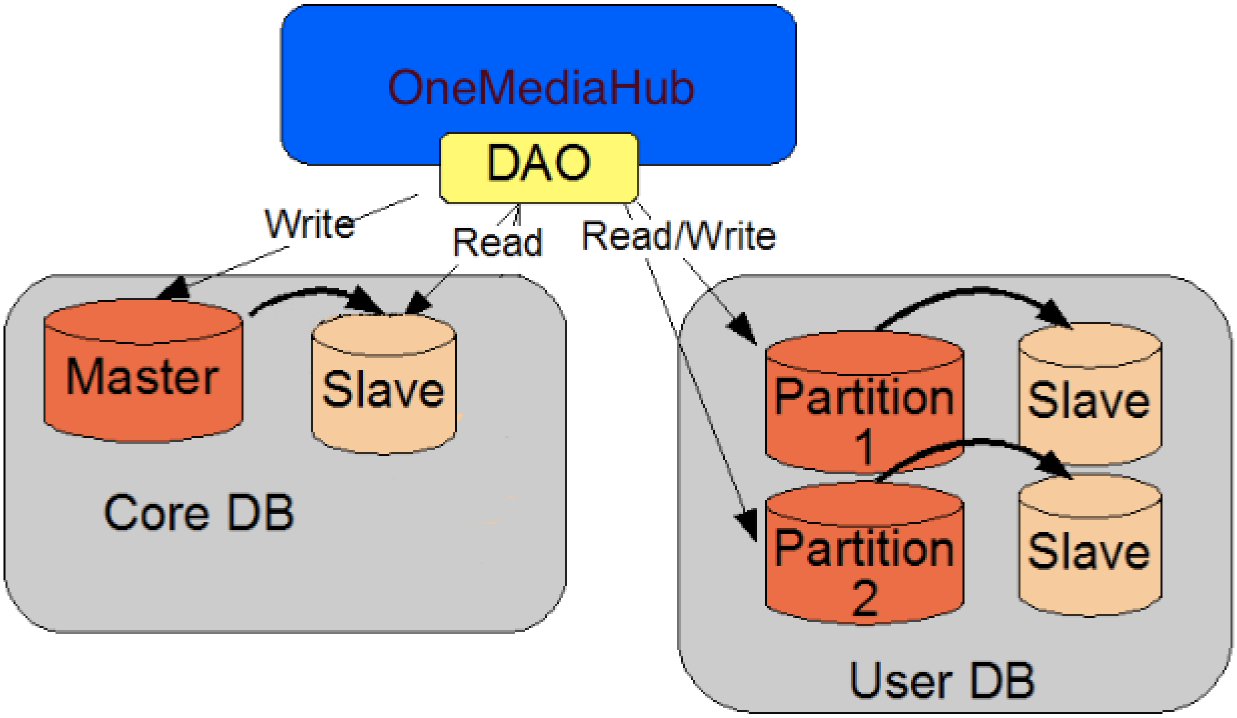
Tip

Basing on the number of users you expect on the system, if you create the expected number of partitions during the installation phase, you can easily move databases as previously described when needed. For example, if your system needs 20 partitions, install OneMediaHub with 20 partitions hosted on the same MySQL server instance; once the load grows you can move the partitions on more than one MySQL server instances and incrementally you could have 20 partitons on 20 different hosts.

6.5 MySQL replication

OneMediaHub is designed to support MySQL replication and split the read queries on slave databases. OneMediaHub takes advantage of the features provided by the MySQL database engine.

Figure 6.2. OneMediaHub-MySQL database replication



- **Read-only connections** will be sent to the **slaves** (just SELECT operations can be performed). They are load-balanced using a round-robin scheme

- **Non-read-only connections** will be sent to the **master**

6.5.1 What does *MySQL replication* mean?

MySQL replication enables statements and data from one MySQL server instance to be replicated to another MySQL server instance. All modification queries are replicated on all the database servers asynchronously. The system being replicated does not wait for the data to have been recorded on the duplicate system, before to be available.

6.5.2 MySQL Connector/J

MySQL Connector/J is the official JDBC driver for MySQL and it supports MySQL replication out-of-the-box. The connection URL must be like:

```
jdbc.url=jdbc:mysql://master,slave1,slave2,slave3/db-name
```

The JDBC driver will automatically send non-read-only queries to the master and read-only query to the slaves.

Chapter 7. Logging

OneMediaHub has the following main log files:

- Data Synchronization Service
- PIM Listener Service
- Portal
- Subscription management
- Tracking (IP tracking of several regular and CSR users' actions)

which are detailed in the next subsections.

The directory where all the logs are stored is `<root directory of your OneMediaHub installation>/logs`, which contains different subdirectories for each component:

- `ds-server`
- `http`
- `pim-listener`
- `portal`
- `subscription`

7.1 Changing the log rotation frequency and size

To change the log rotation frequency and size, edit the file:

```
<root directory of your OneMediaHub installation>/config/com/funambol/
server/logging/appender/funambol.logfile.xml
```

and change the `maxBackupIndex` value to the number of stored log files and `maximumFileSize` to the max log file size before rotation. You can use a byte count or a size string (i.e. 100 MB, 1 GB, 2000 kB). If you use a string, you must change the property type from long to string.

For example:

```
<void property="maximumFileSize">

<long>104857600</long>

</void>
```

or:

```
<void property="maxFileSize">

```

```
<string>100MB</string>
</void>
```

Here is an example of the file `funambol.logfile.xml`:

```
<?xml version="1.0" encoding="UTF-8"?>
<java version="1.5.0_12" class="java.beans.XMLDecoder">
 <object class="org.apache.log4j.RollingFileAppender">
  <void property="file">
   <string>/var/log/funambol/ds-server.log</string>
  </void>
  <void property="layout">
   <object class="org.apache.log4j.PatternLayout">
    <void property="conversionPattern">
   <string>[%d{yyyy-MM-dd HH:mm:ss,SSS}] [%c] [%p] [%X{sessionId}]
 [%X{deviceId}] [%X{userName}] [%X{sourceURI}] %m%n</string>
    </void>
   </object>
  </void>
  <void property="maxBackupIndex">
  <int>50</int>
  </void>
  <void property="maximumFileSize">
   <long>104857600</long>
  </void>
  <void property="name">
   <string>funambol.logfile</string>
  </void>
 </object>
</java>
```

7.1.1 Daily log rotation

In order to change the default Data Synchronization Service log to a daily log, edit the file `<root directory of your OneMediaHub installation>/config/com/funambol/server/logging/logger/funambol.xml` modifying the following element to use the `funambol.daily-logfile` appender instead of the default one:

```
<void method="add">

  <string>funambol.logfile</string>

</void>
```

to:

```
<void method="add">

  <string>funambol.daily-logfile</string>

</void>
```

7.1.2 Hourly log rotation

In order to change the default Data Synchronization Service log to an hourly log, edit the file `<root directory of your OneMediaHub installation>/config/com/funambol/server/logging/logger/funambol.xml` modifying the following element to use the `funambol.hourly-logfile` appender instead of the default one:

```
<void method="add">

  <string>funambol.logfile</string>

</void>
```

to:

```
<void method="add">

  <string>funambol.hourly-logfile</string>

</void>
```

7.2 Changing the logging level

The logging level of the various OneMediaHub components can be configured by editing the following Log4j files:

- Data Synchronization Service

  ```
  <root directory of your OneMediaHub installation>/config/com/funambol/
  server/logging/logger/funambol.xml
  ```

- PIM Listener Service

```
<root directory of your OneMediaHub installation>/config/log4j-pimlistener.xml
```

- Portal

```
<root directory of your OneMediaHub installation>/config/log4j-portal.xml
```

- Subscription management

```
<root directory of your OneMediaHub installation>/config/com/funambol/server/logging/logger/funambol.subscriptions.xml
```

- Tracking

```
<root directory of your OneMediaHub installation>/config/log4j-portal.xml


category name="funambol.tracking"
```

Note

The available severity levels are: FATAL, ERROR, WARN, INFO, DEBUG, TRACE. For reporting reasons, only levels of severity from INFO up should be considered. It is also possible to set the level to OFF to disable logging altogether, and to ALL to obtain complete log information.

7.3 Understanding log files

Statistics can be extracted from log files using several post-processing methods. The simplest of all, which can extract a good amount of statistical information, is the use of the `grep` command on a log file, possibly after some cutting, in order to reduce it to a fixed time period.

In order to understand the structure of OneMediaHub log files, please refer to the following table. Fields are in square brackets and separated by a space.

#	What	Description	Example
1	Timestamp	To the millisecond, in UTC timezone (timezone can not be changed)	[2008-08-05 18:18:13,527]
2	Module ID	The internal module name	[funambol.engine]
3	Severity	The event severity according to Log4j	[INFO]
4	Session ID	The session ID assigned by the server during the initial sync request	[2BDAC1A3F6C4927177326484D6976AED]
5	Client ID	Unique client ID	[fol-QVRITE9OWFA6QW5kaQ==]
6	Remote Address	Client IP Address	[85.23.15.124]

#	What	Description	Example
7	Username	The unique username in the OneMediaHub database	[john]
8	Type of sync	Contacts, notes, ...	[scard]
9	Description	A free text description of the event	Preparing fast synchronization since 2008-08-05 18:03:01.134

Note

If you wish to convert the format to csv, you need to substitute ',' with '.' in the Timestamp field

Note

If the client is downloaded from OneMediaHub, the Client ID field uses a naming convention that distinguishes the various types of client. For instance, the prefix `fol-` identifies the OneMediaHub for Windows.

7.3.1 Example

Below is an example of a OneMediaHub log file snippet:

```
[2008-08-05 19:43:20,782] [funambol.transport.http] [INFO]
[F9A9A75E9B5CA2FB1BBF4A66549C2036] [85.23.15.124] [fwm-358786011398361]
 [mike] [] Handling
incoming request
[2008-08-05 19:43:20,783] [funambol.transport.http] [INFO]
[F9A9A75E9B5CA2FB1BBF4A66549C2036] [85.23.15.124] [fwm-358786011398361]
 [mike] [] Request
URL: http://my.funambol.com/funambol/ds
[2008-08-05 19:43:20,783] [funambol.transport.http] [INFO]
[F9A9A75E9B5CA2FB1BBF4A66549C2036] [85.23.15.124] [fwm-358786011398361]
 [mike] [] Requested
sessionId: F9A9A75E9B5CA2FB1BBF4A66549C2036
[2008-08-05 19:43:20,785] [funambol.transport.http] [INFO]
[49F8F3AEE86ABBD97DEC6508AB02743D] [145.14.11.56] [fbb-833253433]
 [sarah] [] Handling incoming
request
[2008-08-05 19:43:20,786] [funambol.transport.http] [INFO]
[49F8F3AEE86ABBD97DEC6508AB02743D] [145.14.11.56] [fbb-833253433]
 [sarah] [] Request URL:
http://my.funambol.com/funambol/ds
[2008-08-05 19:43:20,786] [funambol.transport.http] [INFO]
[49F8F3AEE86ABBD97DEC6508AB02743D] [145.14.11.56] [fbb-833253433]
 [sarah] [] Requested
sessionId: 49F8F3AEE86ABBD97DEC6508AB02743D
[2008-08-05 19:43:20,793] [funambol.engine] [INFO]
[49F8F3AEE86ABBD97DEC6508AB02743D] [145.14.11.56] [fbb-833253433]
 [sarah] [] Starting
synchronization ...
```

```
[2008-08-05 19:43:20,794] [funambol.transport.http] [INFO]
[F9A9A75E9B5CA2FB1BBF4A66549C2036] [85.23.15.124] [fwm-358786011398361]
 [mike] [] Request
processed.
[2008-08-05 19:43:20,795] [funambol.engine.strategy] [INFO]
[49F8F3AEE86ABBD97DEC6508AB02743D] [145.14.11.56] [fbb-833253433]
 [sarah] [snote] Preparing
fast synchronization since 2008-08-05 19:12:39.309
[2008-08-05 19:43:20,795] [funambol.engine.strategy] [INFO]
[49F8F3AEE86ABBD97DEC6508AB02743D] [145.14.11.56] [fbb-833253433]
 [sarah] [snote] Last call
[2008-08-05 19:43:20,796] [funambol.engine.strategy] [INFO]
[49F8F3AEE86ABBD97DEC6508AB02743D] [145.14.11.56] [fbb-833253433]
 [sarah] [snote] Preparation
completed.
[2008-08-05 19:43:20,796] [funambol.engine.strategy] [INFO]
[49F8F3AEE86ABBD97DEC6508AB02743D] [145.14.11.56] [fbb-833253433]
 [sarah] [snote]
Synchronizing...
[2008-08-05 19:43:20,798] [funambol.transport.http] [INFO]
[49F8F3AEE86ABBD97DEC6508AB02743D] [145.14.11.56] [fbb-833253433]
 [sarah] [] Request
processed.
```

7.4 Customizing DS Service's log settings

7.4.1 Customizing log files on a per-user basis

It is possible to add individual users to the log files maintained by the Data Synchronization Service. In addition to system status and activities, log files can now be directed to record all the activities of individual users.

This enables you to check the activities and any potential problems experienced by users, from the point of view of the server. All you need is the exact OneMediaHub username.

Note

This currently applies only to PIM data, so this feature does not address media data and does not include the OneMediaHub Server API (SAPI).

To set up a log file for an individual user, follow these steps:

1. Add to the file `config/com/funambol/server/logging/logger/funambol.xml` at the bottom a section like this, just before `</object>`:

```
<void property="usersWithLevelALL">
 <object class="java.util.ArrayList">
  <void method="add">
   <string>user_1</string>
  </void>
 </object>
</void>
```

Following the same pattern you can add as many users as you want. Here following is an example of `funambol.xml` with two users with logging level set to `ALL`:

```
<?xml version="1.0" encoding="UTF-8"?>
<java version="1.6.0_25" class="java.beans.XMLDecoder">
 <object class="com.funambol.framework.config.LoggerConfiguration">
  <void property="appenders">
   <object class="java.util.ArrayList">
    <void method="add">
     <string>funambol.logfile</string>
    </void>
   </object>
  </void>
  <void property="level">
   <string>INFO</string>
  </void>
  <void property="name">
   <string>funambol</string>
  </void>
  <void property="usersWithLevelALL">
   <object class="java.util.ArrayList">
    <void method="add">
     <string>user_1</string>
    </void>
    <void method="add">
     <string>user_2</string>
    </void>
   </object>
  </void>
 </object>
</java>
```

2. Save the `funambol.xml` file.

Note

The change will be detected automatically by the server, so that no restart is needed.

7.5 Syslog configuration

In order to send the Data Synchronization Service logs to the syslog server, configure the `<`*`root directory of your OneMediaHub installation`*`>/config/com/funambol/server/logging/logger/funambol.xml` file in order to use the syslog appender.

For example, if you wish to save the logs to a file and also send them to syslog:

```
<void method="add">

 <string>funambol.logfile</string>

</void>

```

```
<void method="add">

 <string>funambol.syslog-appender.xml</string>

</void>
```

By default, the syslog log appender `funambol.syslog-appender.xml` found under *`<root directory of your OneMediaHub installation>`*`/config/com/funambol/server/logging/appender/` is configured with 'localhost' as syslog server (i.e. the server where the syslog deamon is running) and is configured to send all messages with *`facility`* 'user'. It is possible to change this behavior; refer to official syslog documentation for additional information.

In order to send the Portal, Push Connection Service, or PIM Listener Service logs to the syslog server, you will need to configure the following files, respectively:

- *`<root directory of your OneMediaHub installation>`*`/config/log4j-portal.xml` (for the Portal)
- *`<root directory of your OneMediaHub installation>`*`/config/log4j-pimlistener.xml` (for the PIM Listener Service)
- You need to define a new appender in the files listed above, adding the following code:

```
<appender name="syslog" class="org.apache.log4j.net.SyslogAppender">

   <param name="syslogHost" value="localhost"/>

   <param name="facility" value="user"/>

   <layout class="org.apache.log4j.PatternLayout">

   <param name="ConversionPattern"

               value="[%d{yyyy-MM-dd HH:mm:ss,SSS}] [%c] [%p] [%t] %m
%n" />

   </layout>

</appender>
```

As for the Data Synchronization Service, you should configure the syslog server (by default, set to 'localhost') and the facility (by default, set to 'user').

Lastly, you need to add the new appender to the appender list under the 'root' node:

```
<root>

   <level value="error" />

   <!-- <appender-ref ref="console" /> -->

   <!-- <appender-ref ref="rolling-log-file" /> -->

   <!-- <appender-ref ref="daily-log-file" />
```

```
    <!-- <appender-ref ref="hourly-log-file" />

    <appender-ref ref="syslog" />

</root>
```

Note

That in the previous example, 'root' is configured with 'ERROR' level; in order to have more verbose logging, you may want to set it to 'INFO' or to 'ALL'. See Section 7.2, “Changing the logging level” for further details.

7.6 SNMP errors

SNMP errors are recorded by the SNMP logging utility. You can recognize which kind of error has been trapped matching the Message column of the following table with the first row contained in the received notification.

Message	*Description*	*Corrective action*
`java.lang.OutOfMemoryError`	This alarm is generated when no memory is available to the JVM running a server, i.e. all the available memory has been used. This condition should not occur when the server has been correctly sized and under normal conditions.	Check how much memory has been used up by the component process (see Chapter 5, *Operation tasks*). Consider increasing the available memory and restart the server after the proper parameters have been updated. Make sure the server is not under unexpected load. If the server becomes unresponsive, restart it. If the problem persists or is frequent, contact support.

`java.net.ConnectException`
`java.net.NoRouteToHostException`
or
`java.net.UnknownHostException`
	These alarms are generated if a component in the server is experiencing trouble with network connectivity.	Check if the server is able to establish the requested network connections to external/internal hosts.
		Fix network issues.

`com.mysql.jdbc.CommunicationsException`	This alarm is generated when the server loses network connection to a MySQL database.	Check if the database process is running properly and if there is connectivity between the server and the database. Fix network issues.

Message	***Description***	***Corrective action***
`java.sql.SQLException`	This alarm can be generated under two circumstances: 1. database use errors (inserting rows with duplicate primary key, wrong queries, ...) 2. when using certain databases (i.e. Oracle), this may represent a connectivity issue	First check that the database is running properly and that it is healthy and accessible from the server. If the database server and connectivity are OK, report the exception together with the stack trace to support.
`java.lang.StackOverflowError`	This alarm represents an unexpected error that may occur on rare occasions due to software issues.	Save the log and restart the server. Report the log to support.
`Unknown fatal error`	This alarm is generated when the server experiences a generic fatal error.	Save the log and restart the server. Report the log to support.

Chapter 8. Configuring External Services

Note

The screenshots below are provided for your convenience. However, the external services these screenshots are referring to may change their graphical interface from time to time and it may not match the screenshots below exactly. Anyway, by carefully following the instructions you will be able to configure the external services without the need of a screenshot.

8.1 Introduction

This chapter describes the steps to follow in order to allow the integration of the OneMediaHub with external services. The OneMediaHub interfaces with:

- Picasa (by Google), to upload pictures;
- YouTube (by Google), to upload videos;
- Flickr (by Yahoo!), to upload pictures;
- Facebook, to upload pictures or videos, and to import profile pictures from Facebook friends and integrate them into the OneMediaHub address book;
- Twitter, to share pictures or videos;
- Google, to import contacts and calendar.

8.2 General requirements

1. The Portal instance must be accessible from the Internet: external services redirect to pages on the Portal, so these pages have to be available and reachable;
2. The Portal instance must have direct access to the Internet as HTTP requests to third party servers are performed. Note that the list of servers used by Google, Yahoo!, etc. to upload content might be dynamic so a list of URLs called is not available, and that using a proxy is not a supported workaround: some of the external services will not work.
3. The Portal instance address must be the same address for the Internet, therefore the `${portal.server}` property from the `<root directory of your OneMediaHub installation>/bin/config.properties` has to be the same address that the external services redirect to; in other words, the address in the browser's address bar should be the same as the one you specify in the external application configuration (see configuration settings in Section 3.3, “Quick configuration”.)
4. You need to already have the related application accounts to be able to create the application keys below.

8.3 Application keys

8.3.1 Google external services authorization (Picasa, YouTube, and Gmail contacts/calendar import)

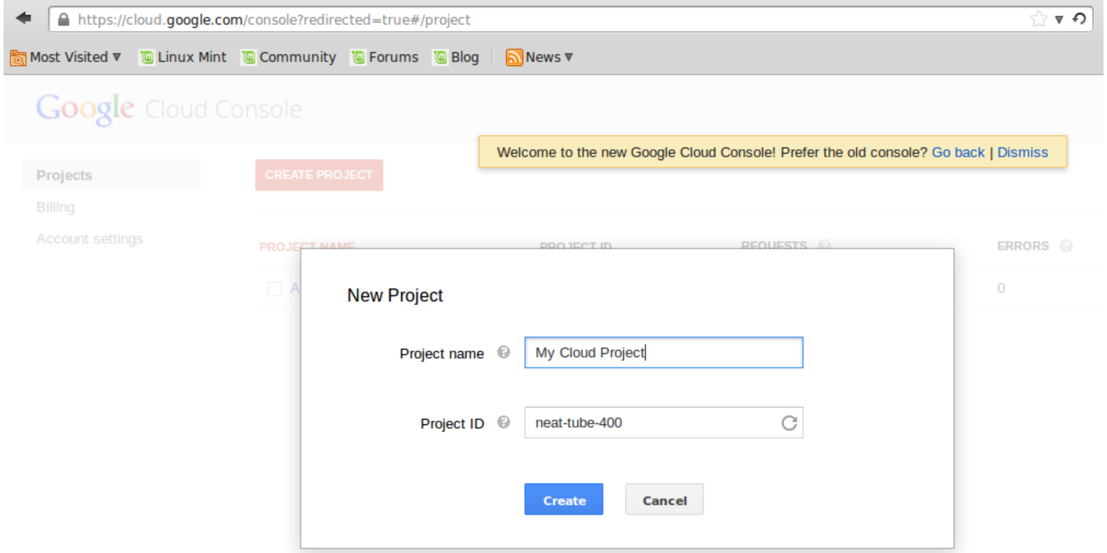
The services *Picasa*, *YouTube*, and *Google* (the latter for contacts and calendar import operations) are configured in one central place, the Google APIs console (https://code.google.com/apis/console):

1. Go to the Google APIs console

2. Log in with your Google account

3. Create a new project (see Figure 8.1, “New Project”) and accept the Terms of Service (see Figure 8.2, “Terms of Service”), ore use an existing one.

Figure 8.1. New Project



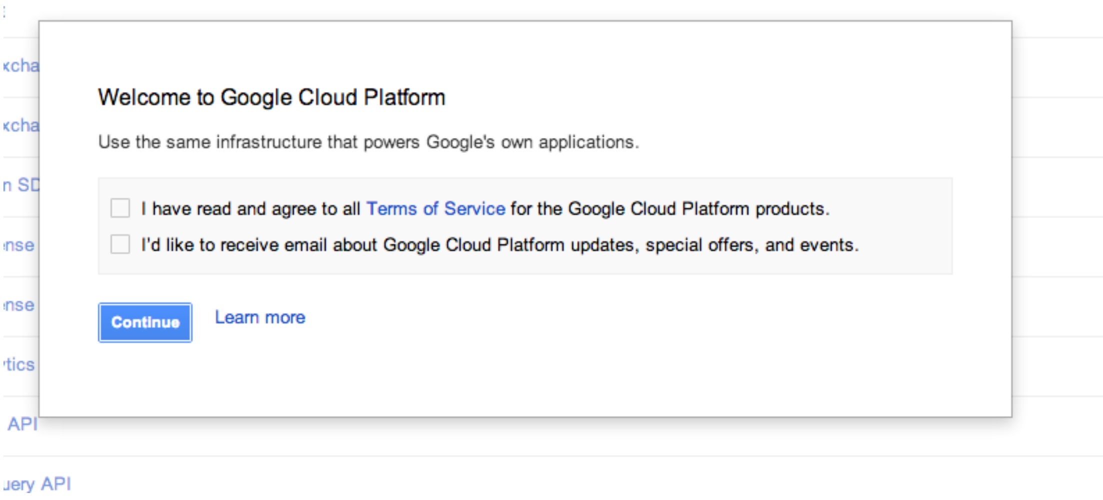
Welcome to the new Google Cloud Console! Prefer the old console? Go back | Dismiss

New Project

Project name: My Cloud Project

Project ID: neat-tube-400

Figure 8.2. Terms of Service



Welcome to Google Cloud Platform

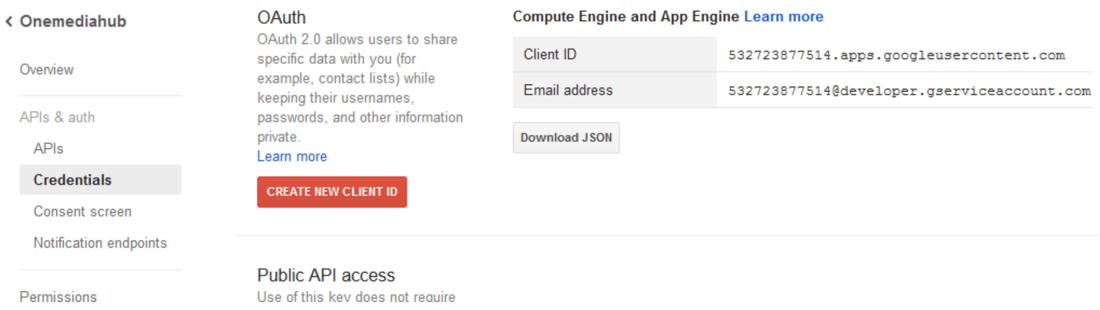
Use the same infrastructure that powers Google's own applications.

□ I have read and agree to all Terms of Service for the Google Cloud Platform products.

□ I'd like to receive email about Google Cloud Platform updates, special offers, and events.

4. Register a new web application inside the project (**`APIs & auth`** → **`Credentials`**+**`CREATE NEW CLIENT ID`**):

Figure 8.3. Register new application



OAuth

OAuth 2.0 allows users to share specific data with you (for example, contact lists) while keeping their usernames, passwords, and other information private. Learn more

CREATE NEW CLIENT ID

Compute Engine and App Engine Learn more

Client ID	532723877514.apps.googleusercontent.com
Email address	532723877514@developer.gserviceaccount.com

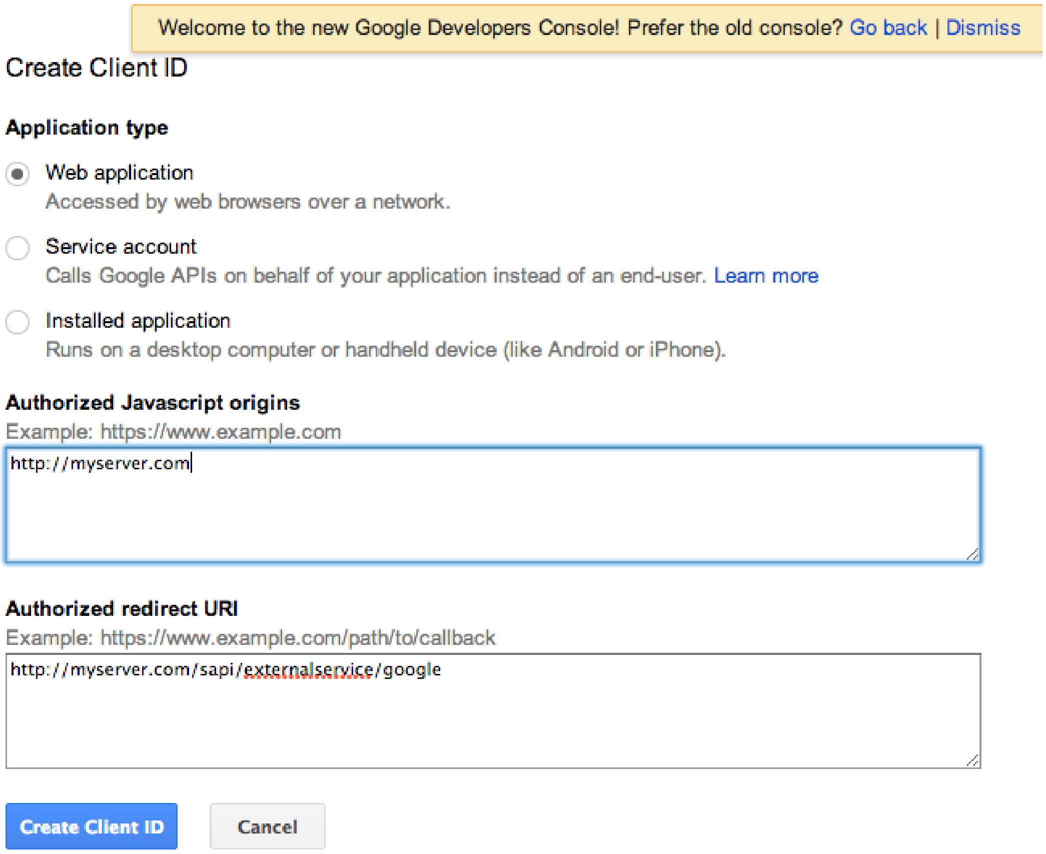
Download JSON

Public API access

Use of this key does not require

5. Chek the **`Web application`** radio button in the **`Appliction type`** list, configure the **`Authorized Javascript origins`** with the OneMediaHub server URL, and under **`Authorized redirect URI`** enter `<`*`OneMediaHub Server URL`*`>/sapi/externalservice/google`. Eventually, click the **`Create Client ID`** button:

Figure 8.4. Create client ID



Welcome to the new Google Developers Console! Prefer the old console? Go back | Dismiss

Create Client ID

Application type

● Web application
Accessed by web browsers over a network.

○ Service account
Calls Google APIs on behalf of your application instead of an end-user. Learn more

○ Installed application
Runs on a desktop computer or handheld device (like Android or iPhone).

Authorized Javascript origins
Example: https://www.example.com

http://myserver.com

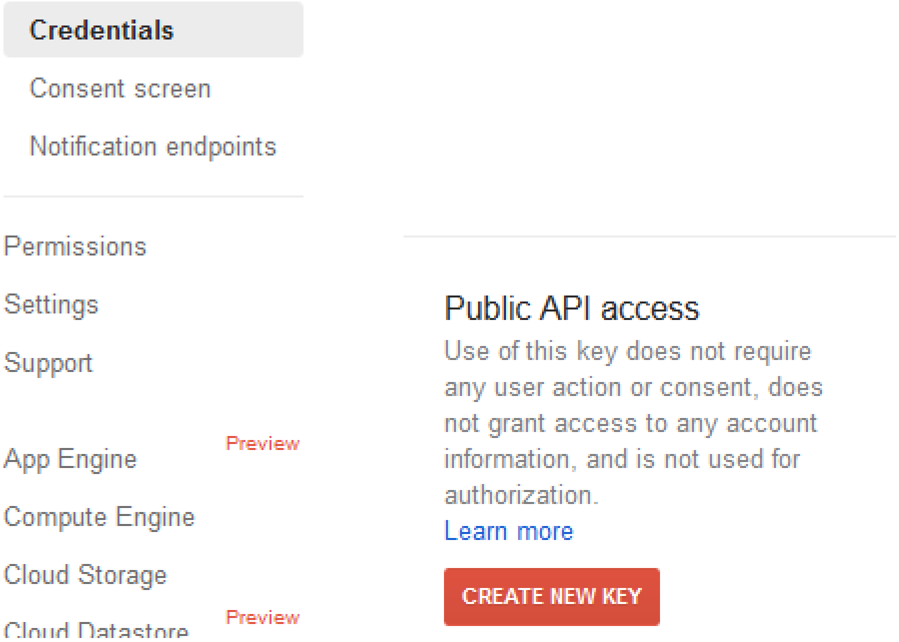
Authorized redirect URI
Example: https://www.example.com/path/to/callback

http://myserver.com/sapi/externalservice/google

Create Client ID | Cancel

6. In order to create an ID also for YouTube, click the **`CREATE NEW KEY`** button under **`Public API access`** (**`APIs & auth`** → **`Credentials`**):

Figure 8.5. Public API access

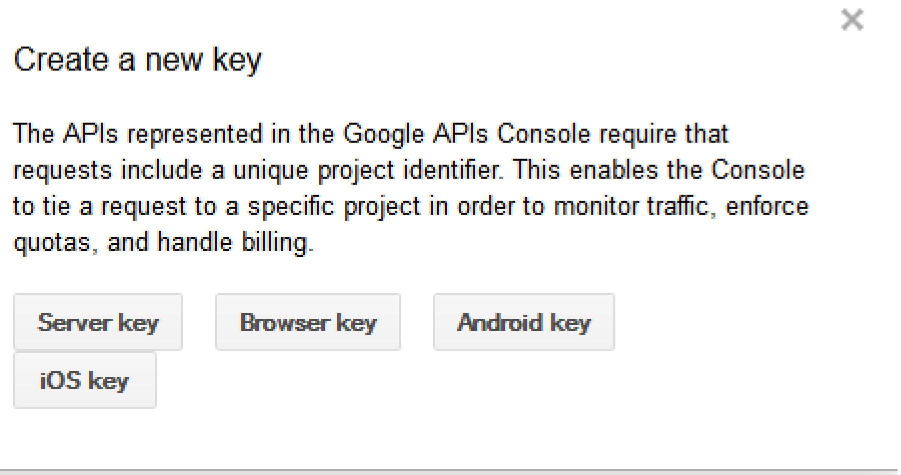


Public API access

Use of this key does not require any user action or consent, does not grant access to any account information, and is not used for authorization.

Select **`Server key`**:

Figure 8.6. Create a new key

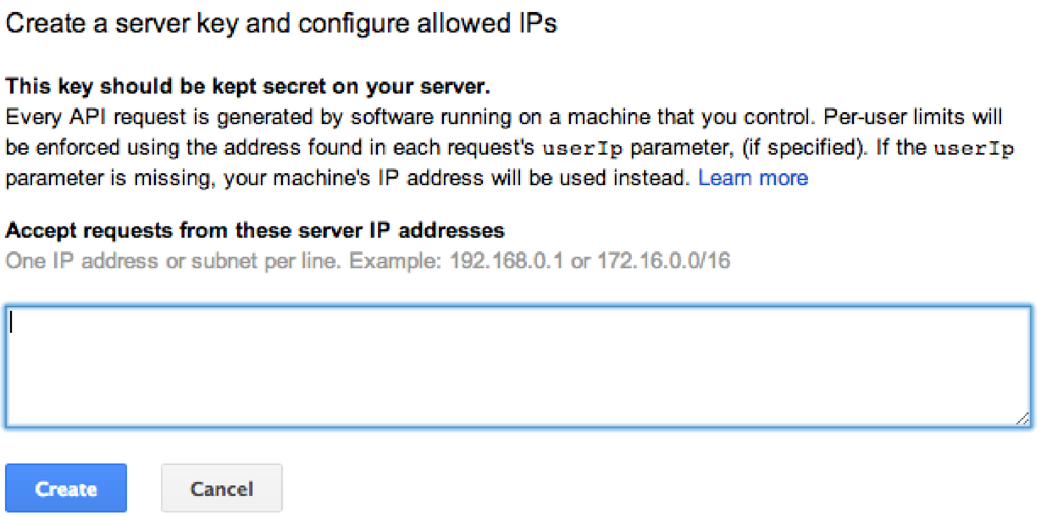


Create a new key

The APIs represented in the Google APIs Console require that requests include a unique project identifier. This enables the Console to tie a request to a specific project in order to monitor traffic, enforce quotas, and handle billing.

Then create server keys for your machine:

Figure 8.7. Create server keys



Create a server key and configure allowed IPs

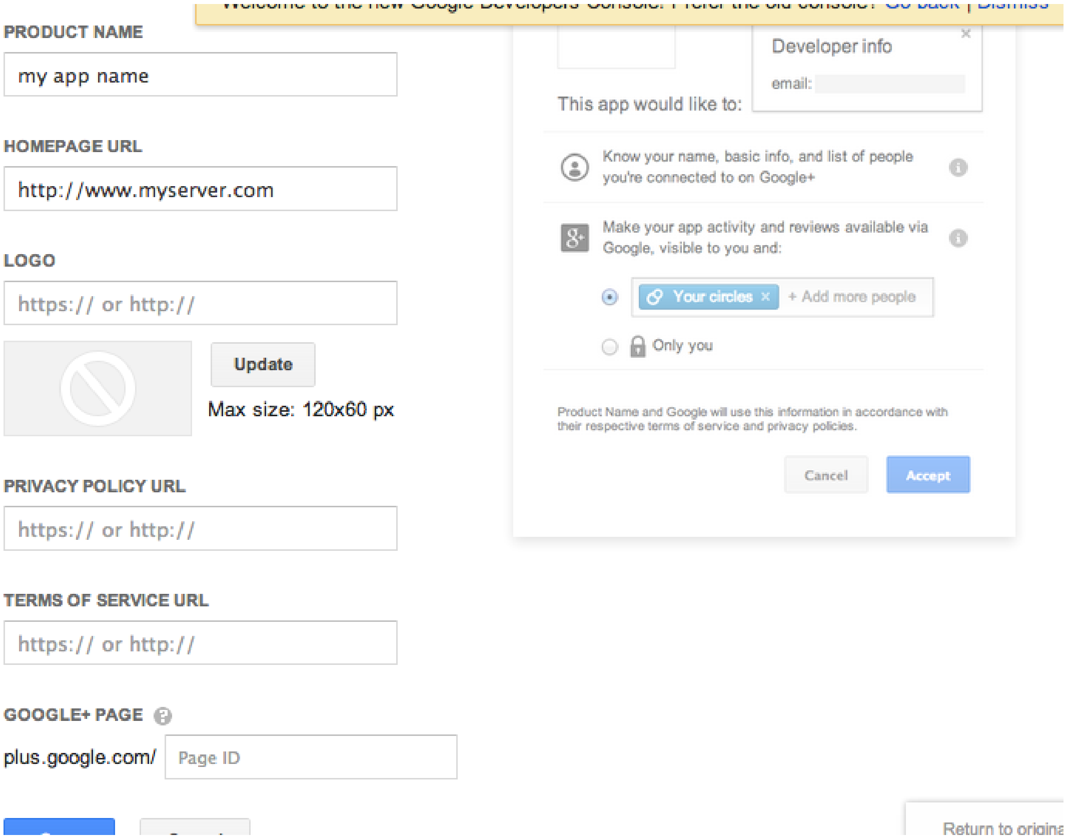
This key should be kept secret on your server.
Every API request is generated by software running on a machine that you control. Per-user limits will be enforced using the address found in each request's `userIp` parameter, (if specified). If the `userIp` parameter is missing, your machine's IP address will be used instead. Learn more

Accept requests from these server IP addresses
One IP address or subnet per line. Example: 192.168.0.1 or 172.16.0.0/16

There is no need to enter any IP address. Just press the **`Create`** button and leave the field empty.

7. Make sure that under **`APIs & auth`** → **`Consent screen`** values for the fields **`EMAIL ADDRESS`**, **`PRODUCT NAME`**, and **`HOMEPAGE URL`** are provided:

Figure 8.8. Consent screen



PRODUCT NAME: my app name

HOMEPAGE URL: http://www.myserver.com

LOGO: https:// or http://

Max size: 120x60 px

PRIVACY POLICY URL: https:// or http://

TERMS OF SERVICE URL: https:// or http://

GOOGLE+ PAGE: plus.google.com/ Page ID

This app would like to:

Know your name, basic info, and list of people you're connected to on Google+

Make your app activity and reviews available via Google, visible to you and:

● Your circles × + Add more people

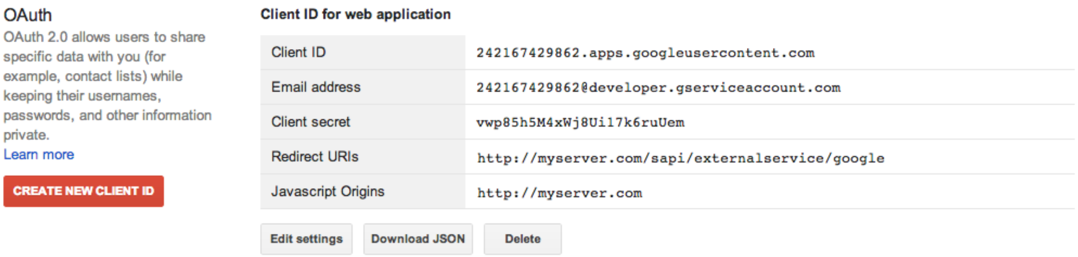
○ Only you

Product Name and Google will use this information in accordance with their respective terms of service and privacy policies.

8. Go to **APIs** and enable at least **Contacts API**, **Calendar API**, and **YouTube Data API v3** (Picasa is not listed yet)

9. Go to **APIs & auth** → **Credentials** and get the **Client ID** and **Client secret** under the **OAuth** section:

Figure 8.9. Client ID and Client secret



OAuth

OAuth 2.0 allows users to share specific data with you (for example, contact lists) while keeping their usernames, passwords, and other information private.

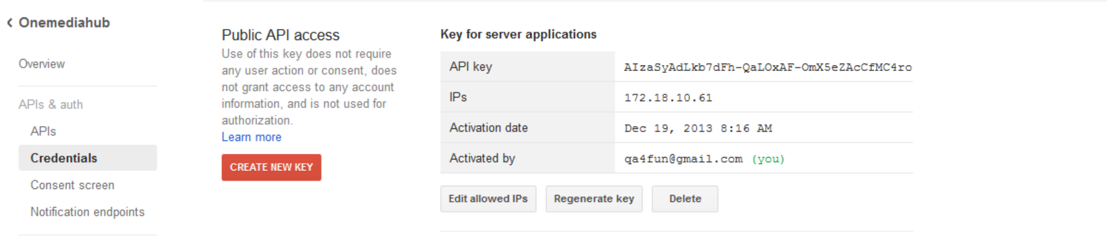
Learn more

Client ID for web application

Client ID	242167429862.apps.googleusercontent.com
Email address	242167429862@developer.gserviceaccount.com
Client secret	vwp85h5M4xWj8Ui17k6ruUem
Redirect URIs	http://myserver.com/sapi/externalservice/google
Javascript Origins	http://myserver.com

The **API key** under **Public API access** is needed for the YouTube service:

Figure 8.10. API key



Public API access

Use of this key does not require any user action or consent, does not grant access to any account information, and is not used for authorization.
Learn more

Key for server applications

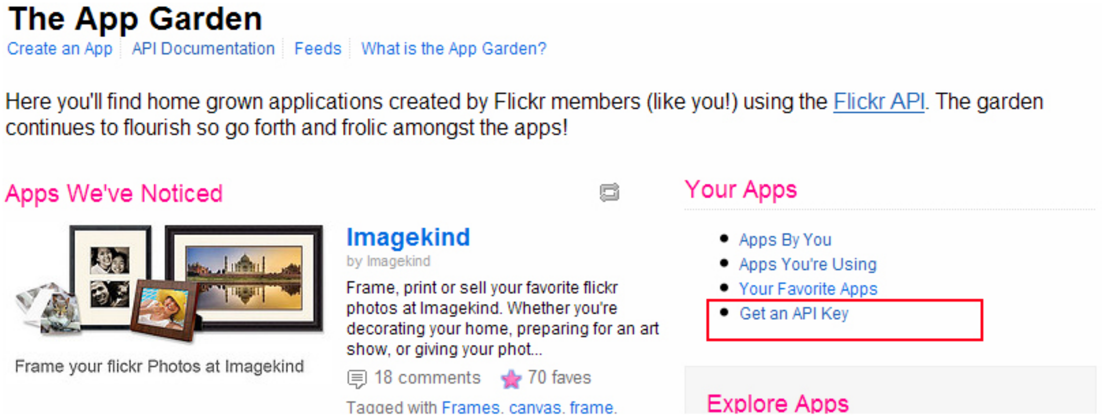
API key	AIzaSyAdLkb7dFh-QaLOxAF-OmX5eZAcCfMC4ro
IPs	172.18.10.61
Activation date	Dec 19, 2013 8:16 AM
Activated by	qa4fun@gmail.com (you)

8.3.2 Flickr

1. Go to the Flickr App Garden (see [33]).

2. Click **`Get an API Key`**, (see Figure 8.11, “Get an API Key”).

Figure 8.11. Get an API Key



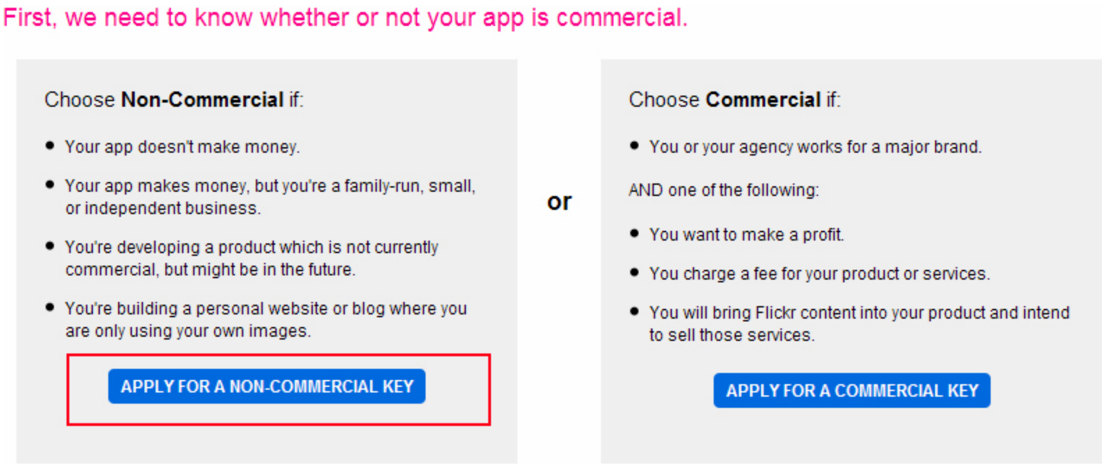
Here you'll find home grown applications created by Flickr members (like you!) using the Flickr API. The garden continues to flourish so go forth and frolic amongst the apps!

Frame, print or sell your favorite flickr photos at Imagekind. Whether you're decorating your home, preparing for an art show, or giving your phot...

Tagged with Frames, canvas, frame,

3. Click **`Apply for a non-commercial key`** (see Figure 8.12, “Get an API Key”).

Figure 8.12. Get an API Key



First, we need to know whether or not your app is commercial.

Choose **Non-Commercial** if:

- Your app doesn't make money.
- Your app makes money, but you're a family-run, small, or independent business.
- You're developing a product which is not currently commercial, but might be in the future.
- You're building a personal website or blog where you are only using your own images.

Choose **Commercial** if:

- You or your agency works for a major brand.

AND one of the following:

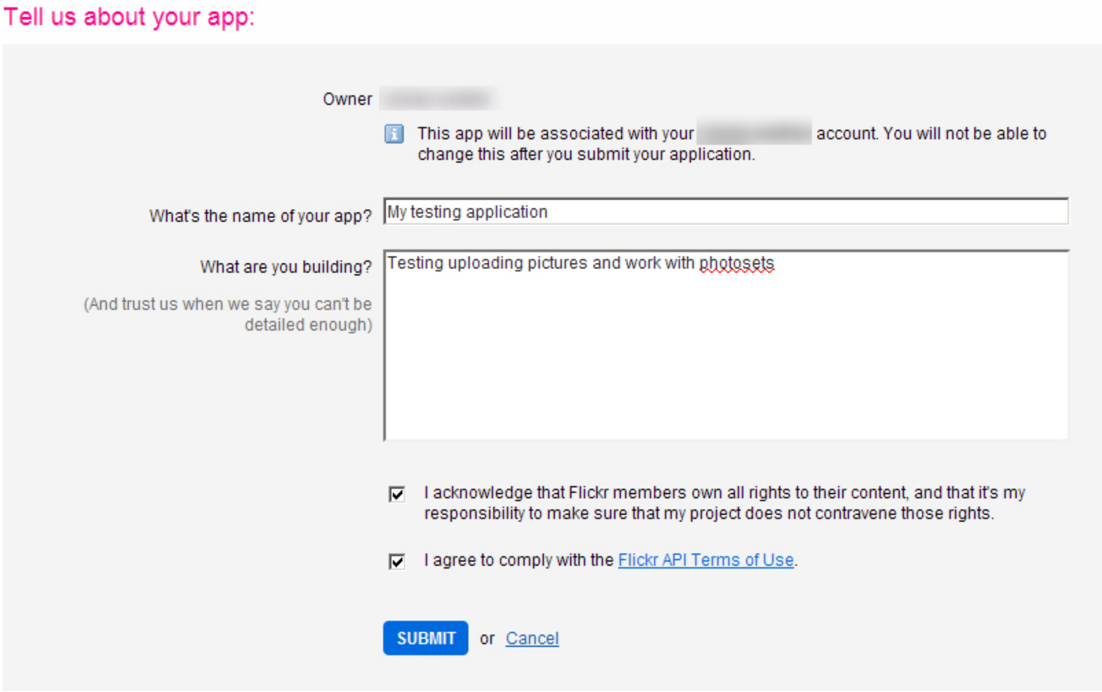
- You want to make a profit.
- You charge a fee for your product or services.
- You will bring Flickr content into your product and intend to sell those services.

Note

If the primary purpose of the application is to make revenue, you may be required to apply for a commercial API key.

4. Fill-in the form with the relevant information and submit (see Figure 8.13, “Submit the app form”).

Figure 8.13. Submit the app form



Tell us about your app:

Owner [redacted]

This app will be associated with your [redacted] account. You will not be able to change this after you submit your application.

What's the name of your app? My testing application

What are you building? Testing uploading pictures and work with photosets

(And trust us when we say you can't be detailed enough)

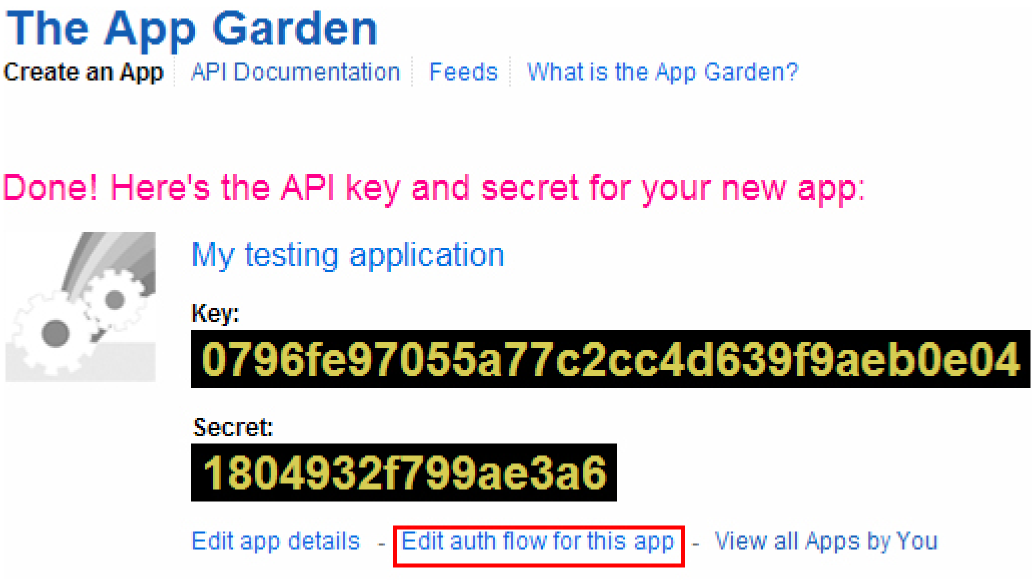
☑ I acknowledge that Flickr members own all rights to their content, and that it's my responsibility to make sure that my project does not contravene those rights.

☑ I agree to comply with the Flickr API Terms of Use.

5. At this point two values are provided: key and secret value; they should be used in the portal configuration phase (see Section 8.4, “Configuring the Portal”).

6. Click **`Edit auth flow for this app`** (see Figure 8.14, “Edit auth flow for this app”).

Figure 8.14. Edit auth flow for this app



The App Garden
Create an App | API Documentation | Feeds | What is the App Garden?

Done! Here's the API key and secret for your new app:

My testing application

Key:
0796fe97055a77c2cc4d639f9aeb0e04

Secret:
1804932f799ae3a6

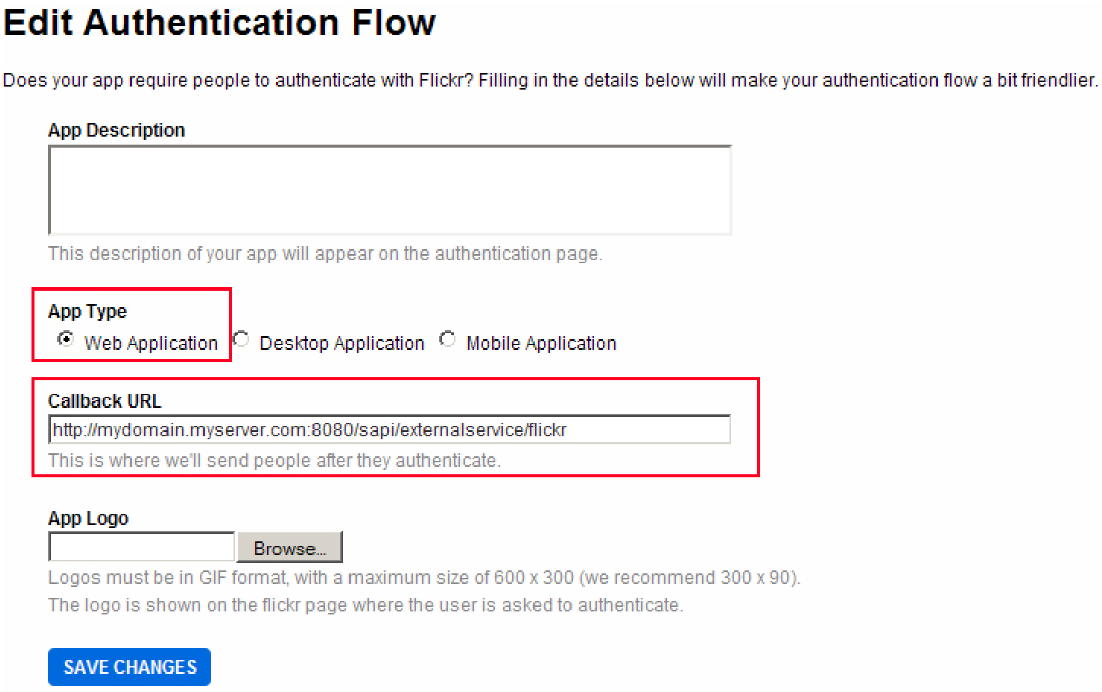
Edit app details - Edit auth flow for this app - View all Apps by You

7. Choose under **App Type** - **Web Application** (see Figure 8.15, “Add App Type and Callback URL”).

8. Enter the URL to your application in the **Callback URL** field. In this example it is: `https://mydomain.myserver.com/sapi/externalservice/flickr`.

   The `/sapi/externalservice/flickr` part is mandatory and constant.

Figure 8.15. Add App Type and Callback URL



Edit Authentication Flow

Does your app require people to authenticate with Flickr? Filling in the details below will make your authentication flow a bit friendlier.

App Description

This description of your app will appear on the authentication page.

App Type
● Web Application ○ Desktop Application ○ Mobile Application

Callback URL
http://mydomain.myserver.com:8080/sapi/externalservice/flickr
This is where we'll send people after they authenticate.

App Logo

Logos must be in GIF format, with a maximum size of 600 x 300 (we recommend 300 x 90).
The logo is shown on the flickr page where the user is asked to authenticate.

9. Save changes.

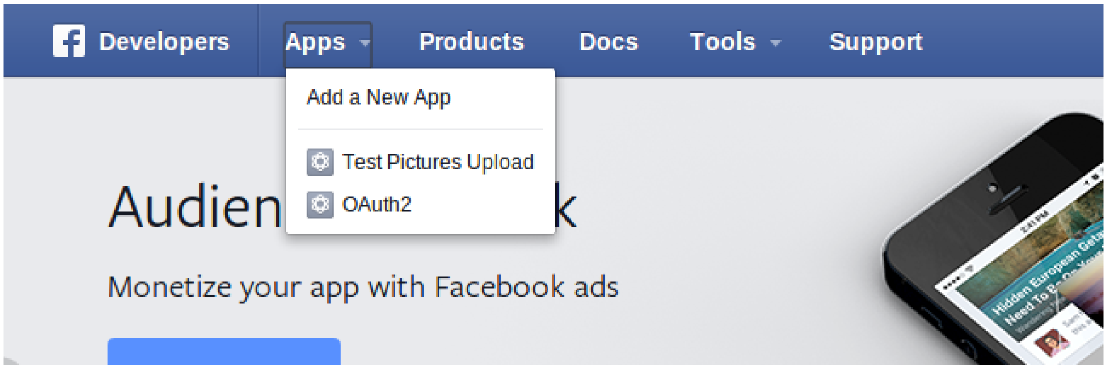
10. The Flickr application is now ready for integration

8.3.3 Facebook

1. Go to Facebook Developers (see [34]) and log in with your Facebook account.

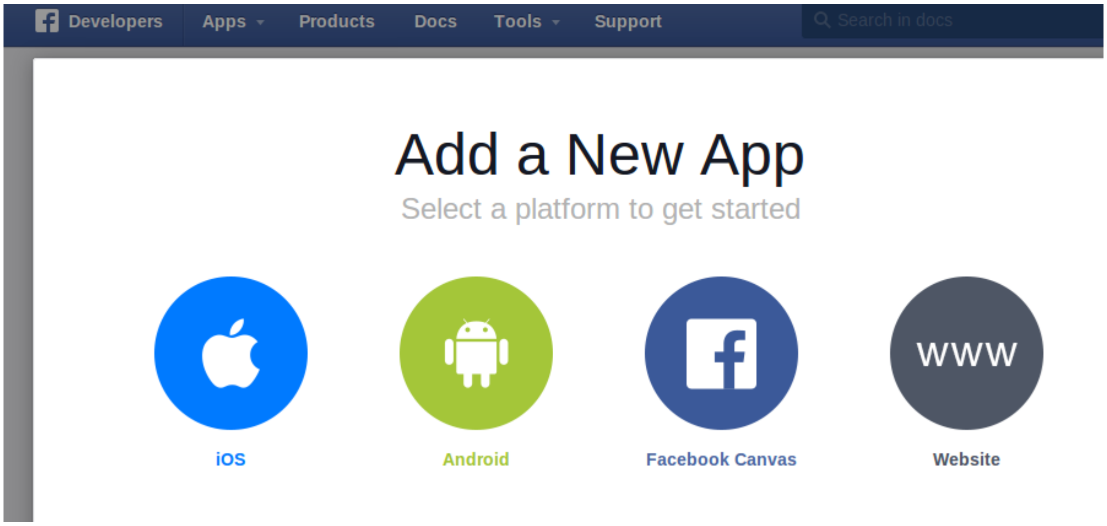
2. Click **Add a New App** (see Figure 8.16, “Add a New App”).

Figure 8.16. Add a New App



3. Select **Website** (see Figure 8.17, “Add a New Website App”).

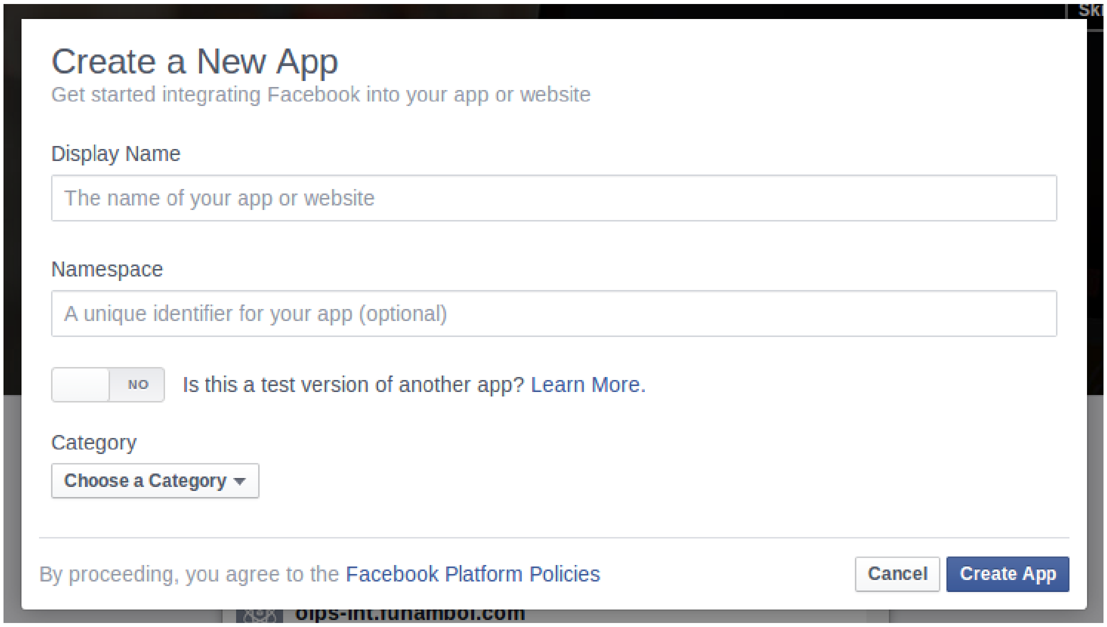
Figure 8.17. Add a New Website App



4. Select **Skip and Create App ID**.

5. Fill in the form with **Display Name** and **Namespace** (see Figure 8.18, “Create New Application”).

Figure 8.18. Create New Application



Create a New App

Get started integrating Facebook into your app or website

Display Name

The name of your app or website

Namespace

A unique identifier for your app (optional)

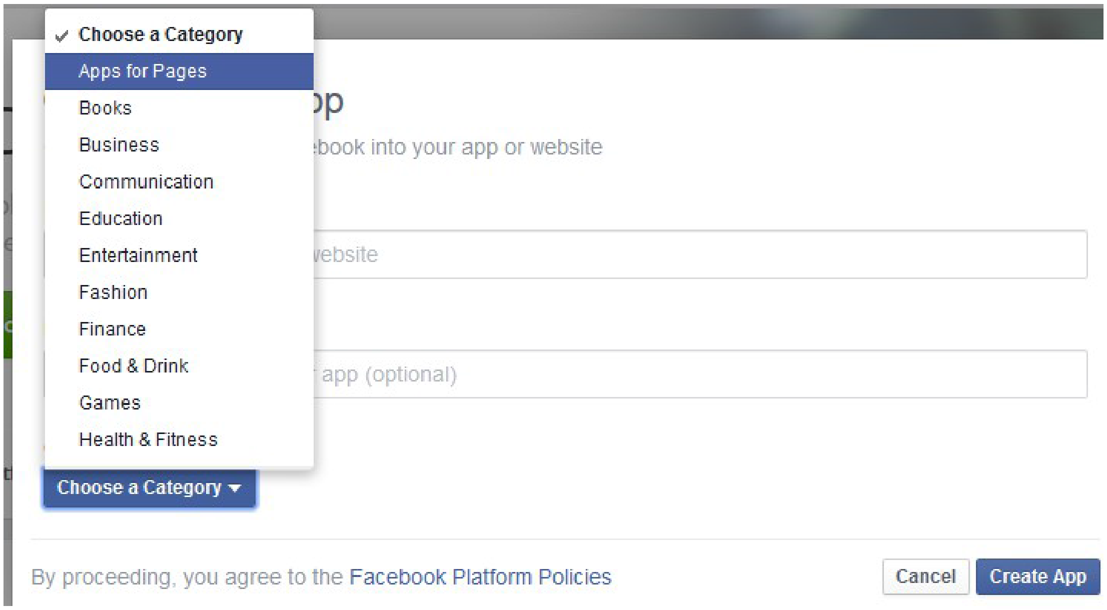
Is this a test version of another app? Learn More.

Category

By proceeding, you agree to the Facebook Platform Policies

6. **`Choose a Category`** → **`Apps for Pages`** (see Figure 8.19, “Choose your category”) and click **`Create App`**.

Figure 8.19. Choose your category

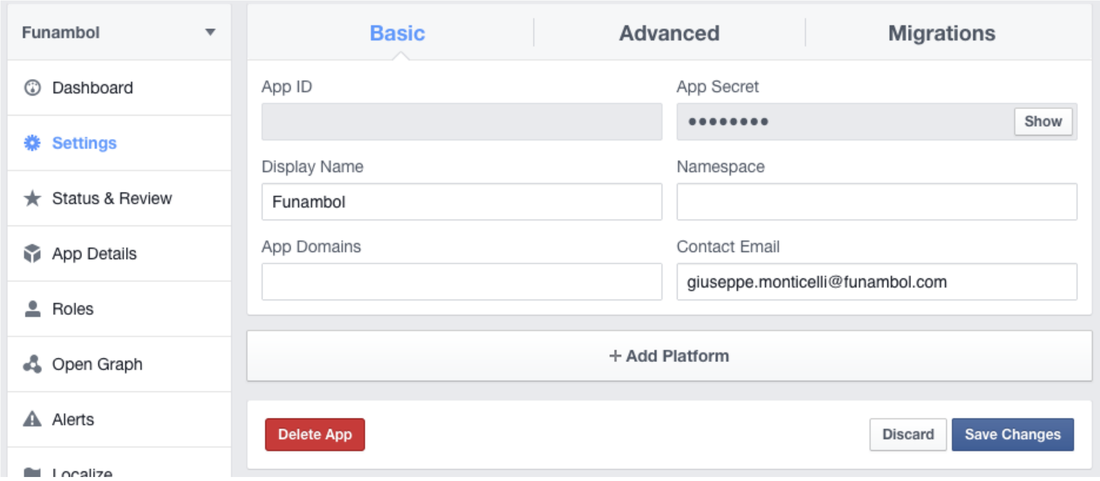


By proceeding, you agree to the Facebook Platform Policies

7. Enter the CAPTCHA from the **`Security Check`** window and click **`Submit`**.

8. Go to **`Settings`**: under **`Basic`** add your **`Contact Email`**, then click **`Save Changes`**.

Figure 8.20. Settings



App ID

App Secret ••••••••

Display Name: Funambol

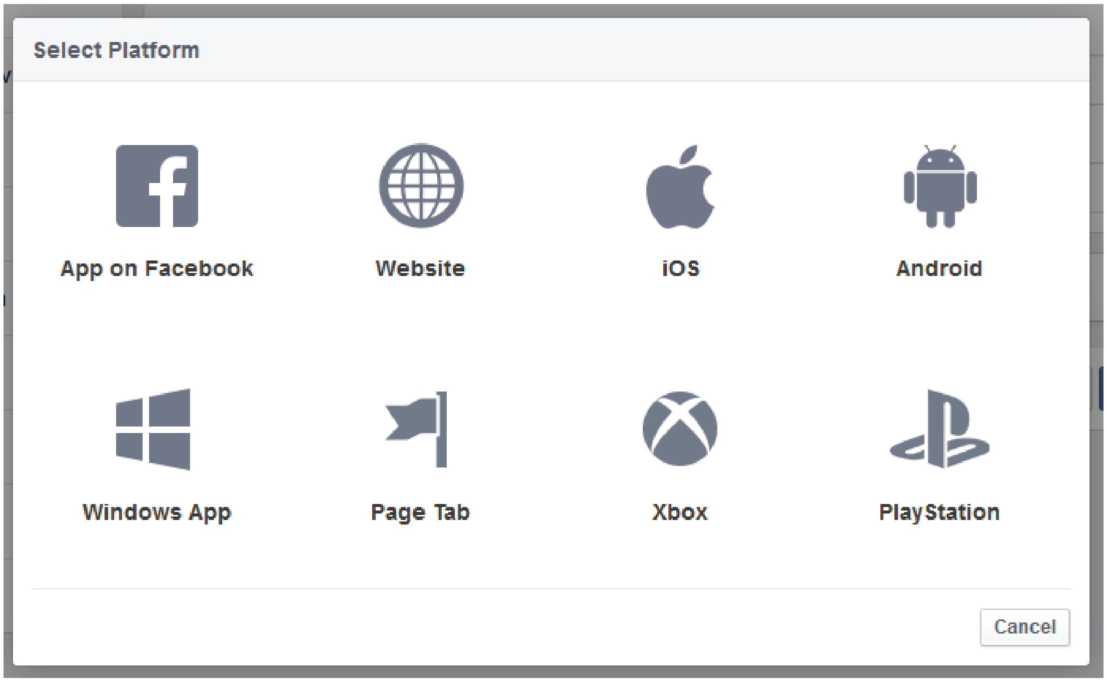
Namespace

App Domains

Contact Email: giuseppe.monticelli@funambol.com

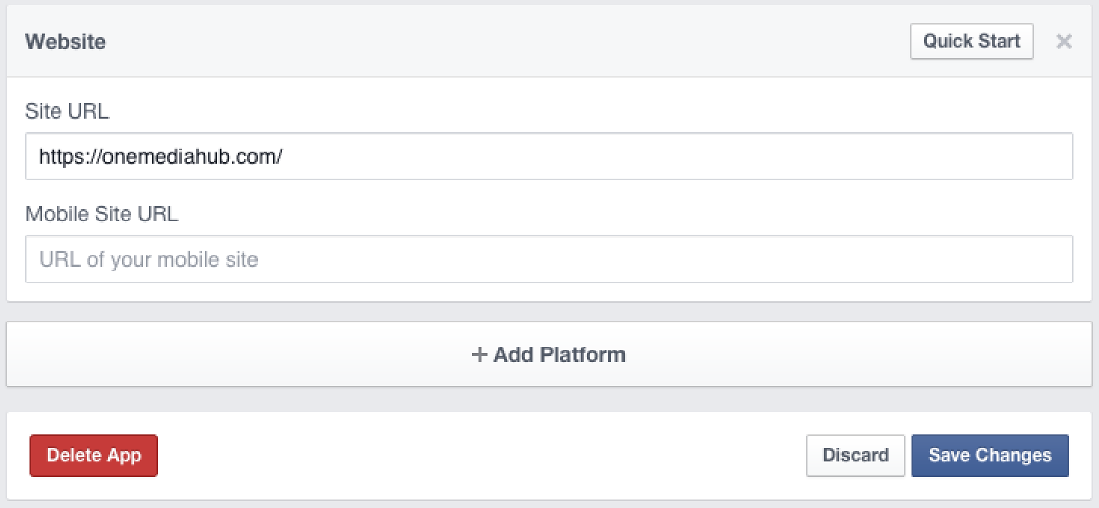
9. Click **`+ Add Platform`** and select **`Website`**.

Figure 8.21. Select Platform



10. Enter your site URL into the corresponding edit field and click **`Save Changes`**.

Figure 8.22. Add site URL



Website

Site URL

https://onemediahub.com/

Mobile Site URL

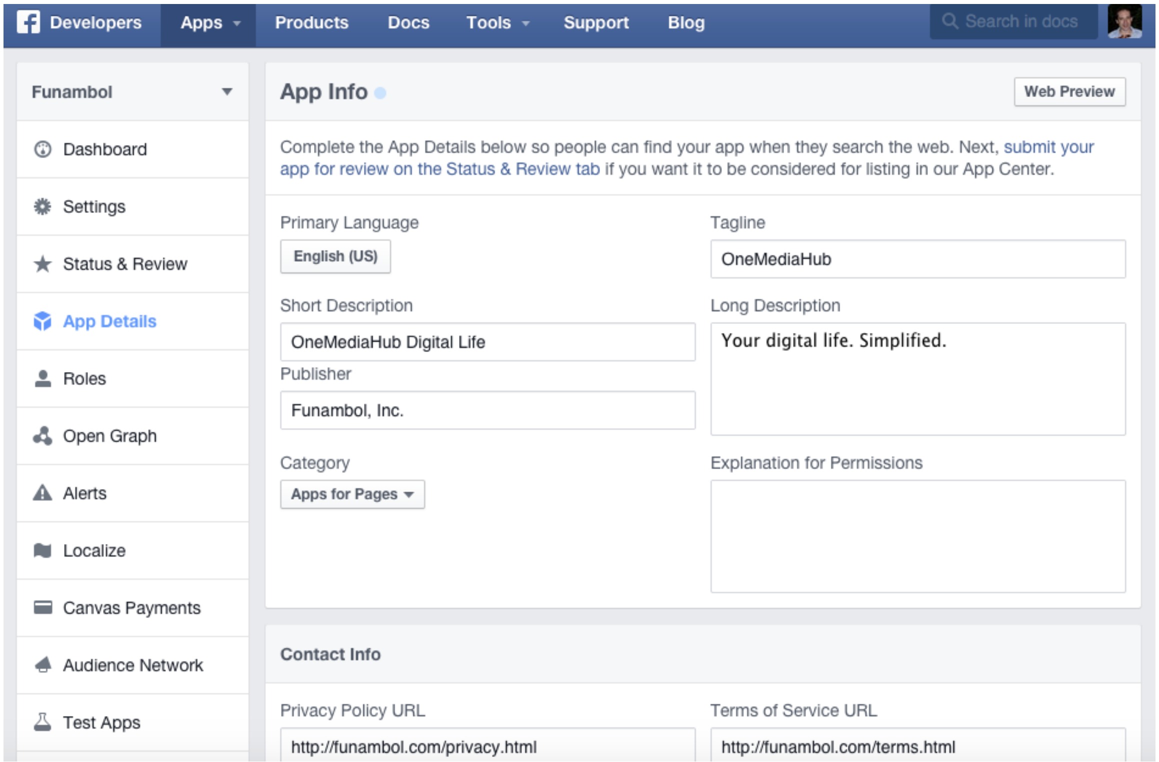
URL of your mobile site

11. You can see a summary of your settings on the page **`Settings`** under **`Basic`**. Click **`Show`** to see the **`App Secret`** (the **`App ID`** is already shown). **`App ID`** and **`App Secret`** are ready to be used in your Portal configuration.

8.3.3.1 Review and submission

From the Developers Facebook panel, click on the **`App Details`** menu entry and fill the **`App Info`**. Add also a 1024 × 1024 pixels icon.

Figure 8.23. App Info



App Info

Complete the App Details below so people can find your app when they search the web. Next, submit your app for review on the Status & Review tab if you want it to be considered for listing in our App Center.

Primary Language: English (US)

Tagline: OneMediaHub

Short Description: OneMediaHub Digital Life

Long Description: Your digital life. Simplified.

Publisher: Funambol, Inc.

Category: Apps for Pages

Explanation for Permissions

Contact Info

Privacy Policy URL: http://funambol.com/privacy.html

Terms of Service URL: http://funambol.com/terms.html

Start Submission

From the Developer Facebook panel, click on the **Status & Review** menu entry and **Start Submission**:

1. Select the **user_photos** and **publish_actions** permissions, and provide a description for both. In the step-by-step instructions the information on how the permissions are used should be provided for both the permissions. For example:

   > OneMediaHub allows the user to upload one or more pictures to their Facebook account (using **publish_actions**) and to create new albums (using **user_photos**.)
   >
   > 1. Go to `https://onemediahub.com`
   > 2. Login as *<user>* / *<password>*
   > 3. You are now on the homepage
   > 4. Select one picture, right click, and select **Share**
   > 5. Select **Facebook**
   > 6. You are now at Facebook login configuration
   > 7. Configure the Facebook account and select **Continue**
   > 8. Select **New album** (usage of the **user_photos** permission)
   > 9. Post the picture to Facebook (usage of the **publish_actions** permission)

2. Add a minimum of four screenshots to highlight where Facebook will be used. They should follow what you described above. To enable Facebook on the Portal, configure the file *<root directory of your OneMediaHub installation>*`/config/portal/portal-ext.properties` with the App ID and the App Secret:

   ```
   sapi.external-service.facebook.id=<App ID>
   sapi.external-service.facebook.secret=<App Secret>
   ```

   Screenshots for the different steps should be provided as for below. It's suggested to highlight in the step-by-step instructions which screenshot refers to which step. For example:

Figure 8.24. Share

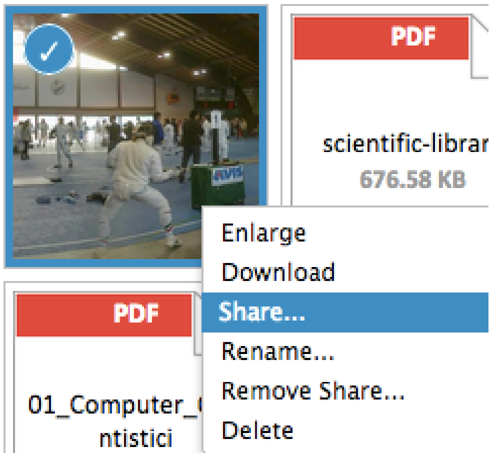
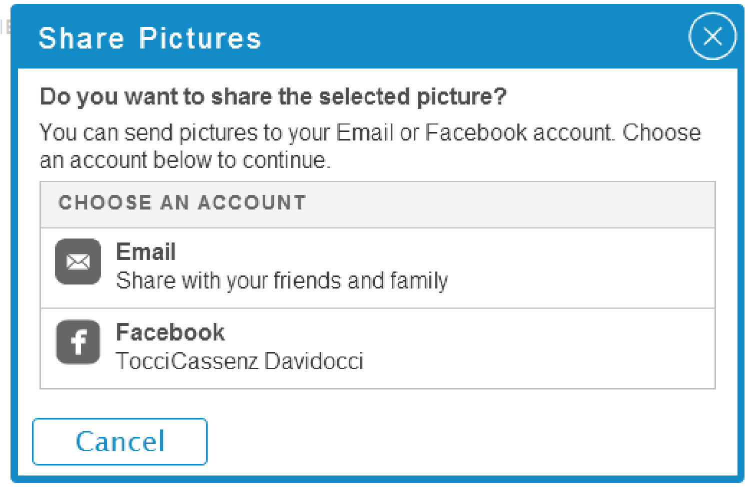


Figure 8.25. Share Pictures



Share Pictures

Do you want to share the selected picture?

You can send pictures to your Email or Facebook account. Choose an account below to continue.

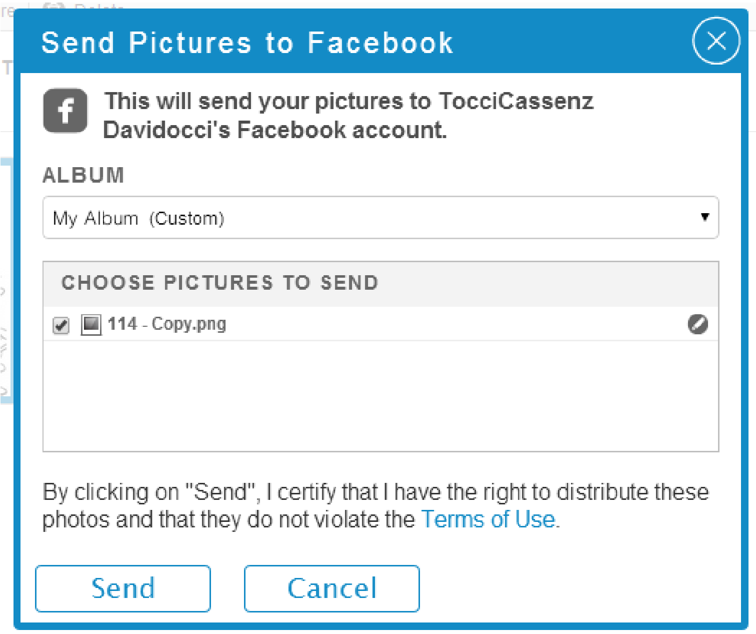
CHOOSE AN ACCOUNT

Email
Share with your friends and family

Facebook
TocciCassenz Davidocci

Cancel

Figure 8.26. Send Pictures to Facebook



Send Pictures to Facebook

This will send your pictures to TocciCassenz Davidocci's Facebook account.

ALBUM

My Album (Custom)

CHOOSE PICTURES TO SEND

☑ 114 - Copy.png

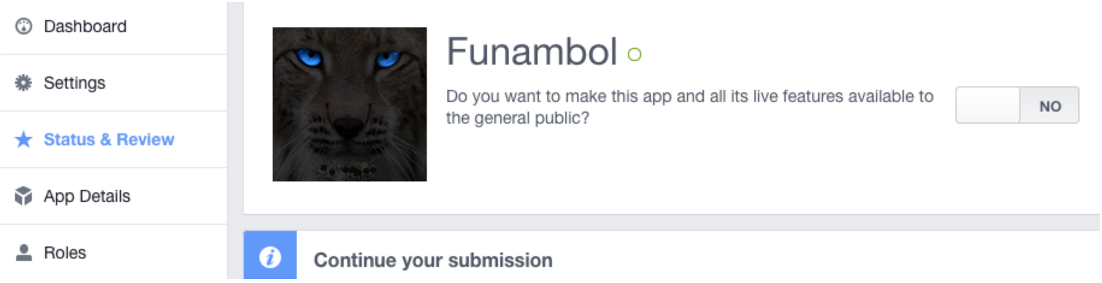
By clicking on "Send", I certify that I have the right to distribute these photos and that they do not violate the Terms of Use.

3. Provide a test user previously created and populated with some pictures, and also some explanations of how to use the sharing feature.

4. Complete the subscription for review. Usually it takes **up to seven business days**.

5. After the review by Facebook, go to the `Status & Review` page and turn on the button to make the app and all its live features available to the general public.

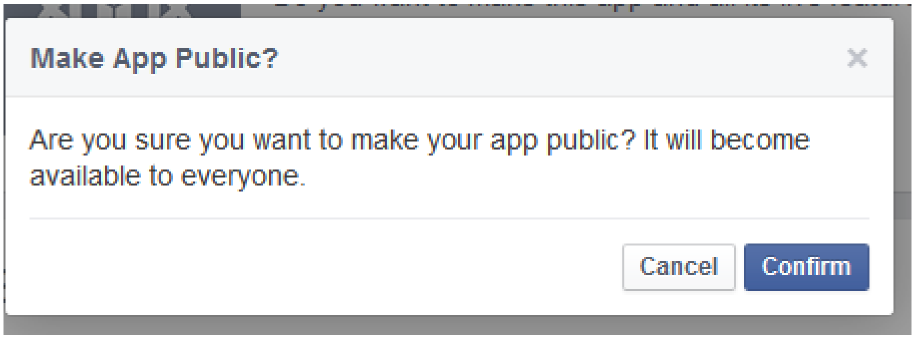
Figure 8.27. Status & Review



Do you want to make this app and all its live features available to the general public?

After that, confirm as per Figure 8.28, “Make App Public”.

Figure 8.28. Make App Public



Make App Public?

Are you sure you want to make your app public? It will become available to everyone.

8.3.3.2 Native login and save authorization tokens support

Clients can log in directly on the Facebook website and save the authorization tokens on the server. In order for the user to be able to share the tokens between multiple clients (Portal, iOS, Android), it is necessary to edit the application settings accordingly. These steps need to be performed, for both Android and iOS clients, after the publication process of the applications in their respective markets. Clients must have already the Facebook application installed in order to take advantage of this feature.

Android

It is mandatory to provide the Android key hash to Facebook. The OneMediaHub Android app needs to be signed, and the app key hash needs to be registered with Facebook as a security check for authenticity.

Note

> For testing purposes you can use the *debug.keystore* available in the Android SDK home directory, with default password `android`.

This process will generate a 30 characters long key hash. Once you have the key hash, follow the steps below to save it on Facebook:

1. Generate the key hash on the local computer by running the Java keytool utility against the Android keystore used to sign the application. On `Linux` and `OS X` run: **`keytool -exportcert -alias myandroidkey -keystore %path_to_key_store_file | openssl sha1 -binary | openssl base64`**.

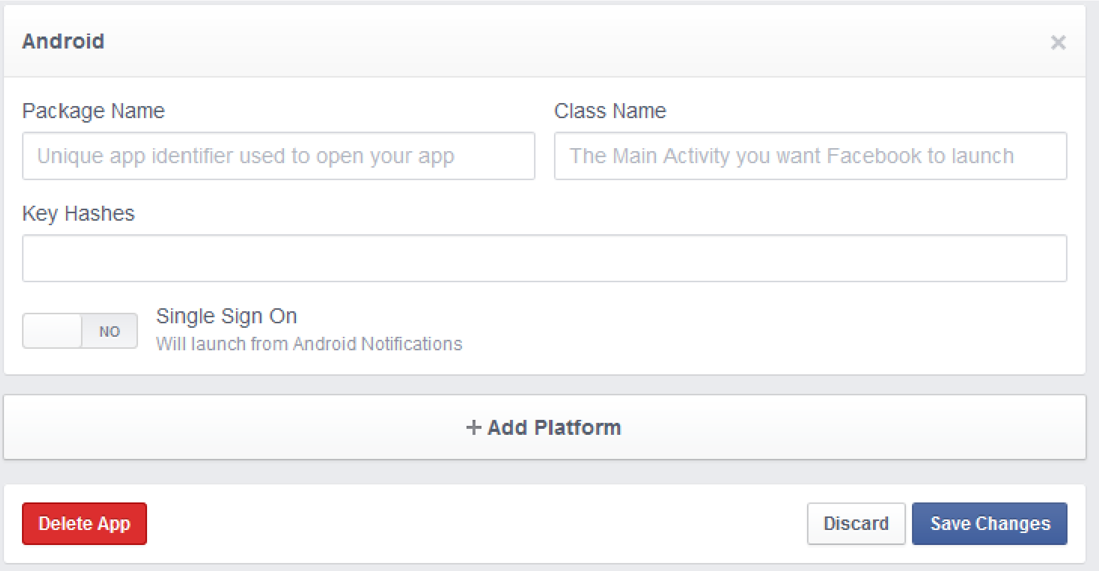
   This will prompt for the keystore password.

2. From the **`Settings`** page click **`+ Add platform`** and select **`Android`** (see Figure 8.21, “Select Platform”.) Enter the following information (see Figure 8.29, “Android”):

   - the package name of the Android application;
   - the class name `com.funambol.android.activities.AndroidHomeScreen`;
   - the key hash that represents your Android application.

   More information on this subject is available at [35].

Figure 8.29. Android


Android
×
Package Name
Unique app identifier used to open your app
Class Name
The Main Activity you want Facebook to launch
Key Hashes
NO
Single Sign On
Will launch from Android Notifications
+ Add Platform
Delete App
Discard
Save Changes

iOS

The App ID/API Key created as described above are required at build time for the OneMediaHub iOS App. Once the build with the embedded App ID/API Key has been submitted to the App Store, a further change in the Facebook configuration is required:

1. On the **`Settings`** page click **`+ Add Platform`** and select **`iOS`** (see Figure 8.21, “Select Platform”.) Enter the *Bundle ID* of the iOS app (see Figure 8.30, “iOS”.)

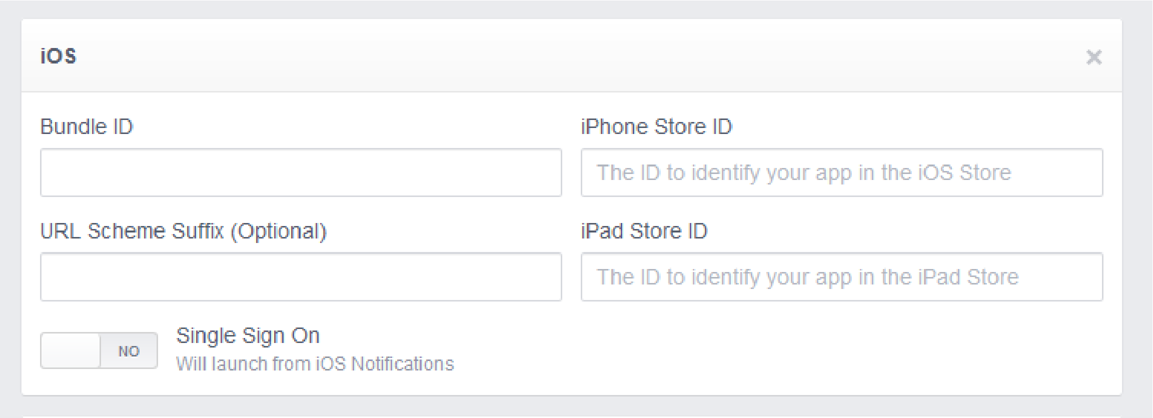
2. Enter the *iPhone App Store ID* and the *iPad App Store ID* under the same tab.

3. Also as URL scheme suffix always use `omh`.

Note

When submitting an iOS app to the App Store you need to provide the product identifier (*Bundle ID*), which is also stored in the project's `info.plist` file. Once the app has been accepted on the store, you receive back a valid *App Store ID*.

Figure 8.30. iOS



iOS

Bundle ID

iPhone Store ID

The ID to identify your app in the iOS Store

URL Scheme Suffix (Optional)

iPad Store ID

The ID to identify your app in the iPad Store

NO Single Sign On

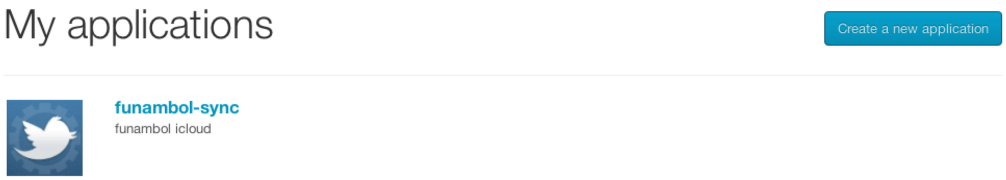
Will launch from iOS Notifications

8.3.4 Twitter

Here following the steps required to create a new Twitter application, and how to obtain a key and secret for the quick configuration:

1. If you have not already created a Twitter account, then create a new one.
2. Go to https://dev.twitter.com/apps
3. If you have not already signed in to Twitter, then sign in using your account
4. Click on **`Create a new application`**:

   ### Figure 8.31. Create a new application

   My applications

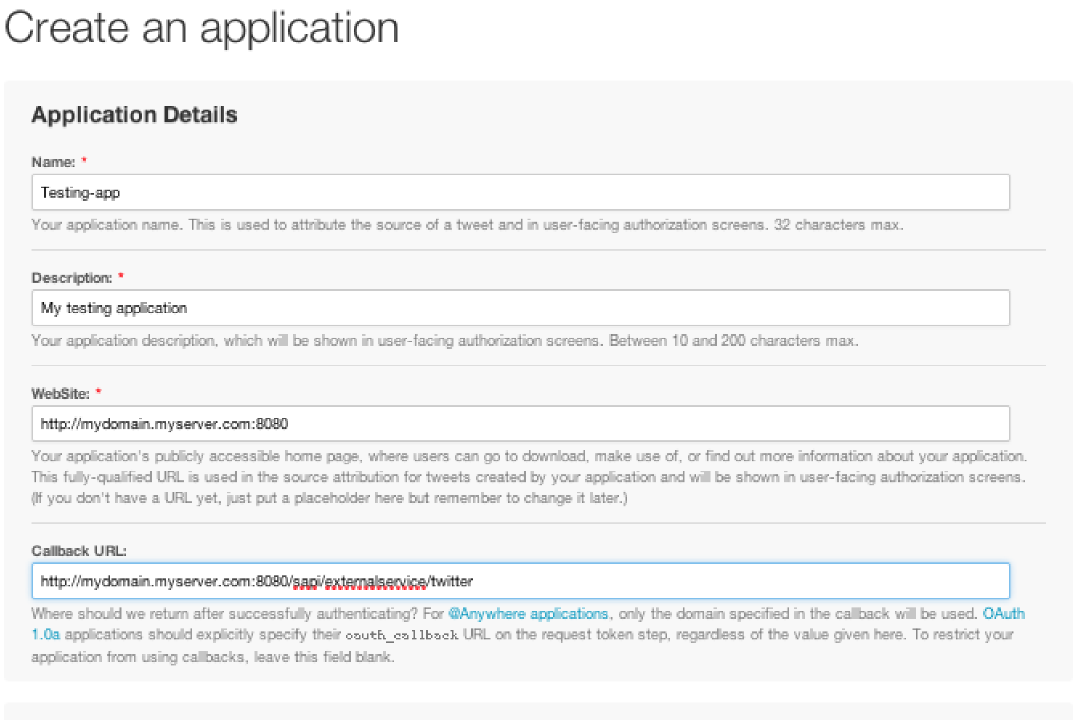
   Create a new application

   funambol-sync

   funambol icloud

5. Fill-in the form:

Figure 8.32. Application Details



Create an application

Application Details

Name: *

Testing-app

Your application name. This is used to attribute the source of a tweet and in user-facing authorization screens. 32 characters max.

Description: *

My testing application

Your application description, which will be shown in user-facing authorization screens. Between 10 and 200 characters max.

WebSite: *

http://mydomain.myserver.com:8080

Your application's publicly accessible home page, where users can go to download, make use of, or find out more information about your application. This fully-qualified URL is used in the source attribution for tweets created by your application and will be shown in user-facing authorization screens. (If you don't have a URL yet, just put a placeholder here but remember to change it later.)

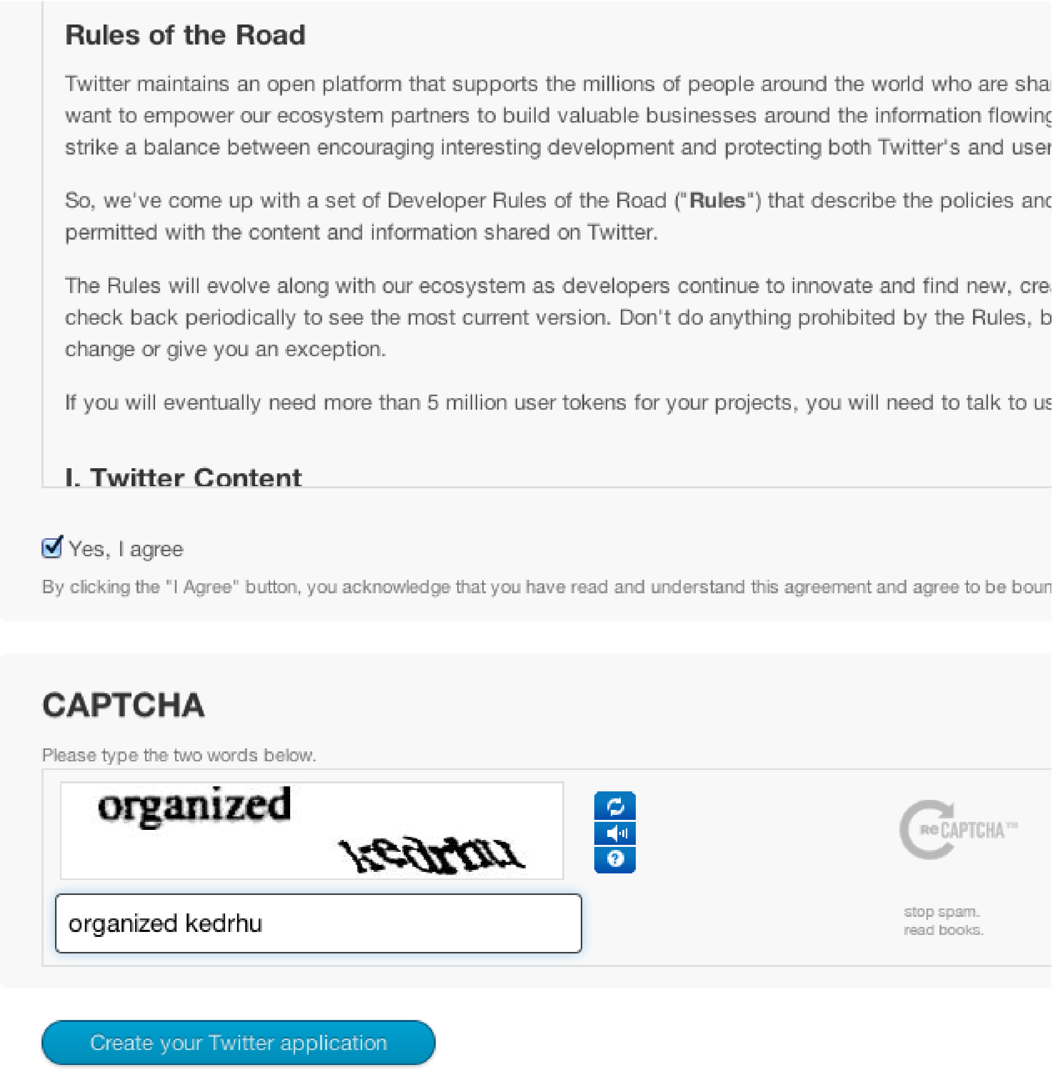
Callback URL:

http://mydomain.myserver.com:8080/sapi/externalservice/twitter

Where should we return after successfully authenticating? For @Anywhere applications, only the domain specified in the callback will be used. OAuth 1.0a applications should explicitly specify their `oauth_callback` URL on the request token step, regardless of the value given here. To restrict your application from using callbacks, leave this field blank.

6. Agree to the **`Rules of the road`**, insert the **`CAPTCHA`**, then click on **`Create your Twitter application`**:

Figure 8.33. Rules of the Road



Rules of the Road

Twitter maintains an open platform that supports the millions of people around the world who are sha
want to empower our ecosystem partners to build valuable businesses around the information flowin
strike a balance between encouraging interesting development and protecting both Twitter's and use

So, we've come up with a set of Developer Rules of the Road ("**Rules**") that describe the policies an
permitted with the content and information shared on Twitter.

The Rules will evolve along with our ecosystem as developers continue to innovate and find new, cre
check back periodically to see the most current version. Don't do anything prohibited by the Rules, b
change or give you an exception.

If you will eventually need more than 5 million user tokens for your projects, you will need to talk to us

I. Twitter Content

☑ Yes, I agree

By clicking the "I Agree" button, you acknowledge that you have read and understand this agreement and agree to be boun

CAPTCHA

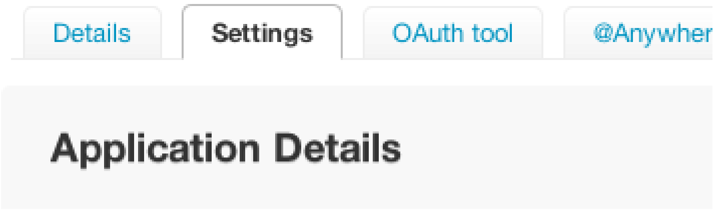
Please type the two words below.

organized kedrhu

organized kedrhu

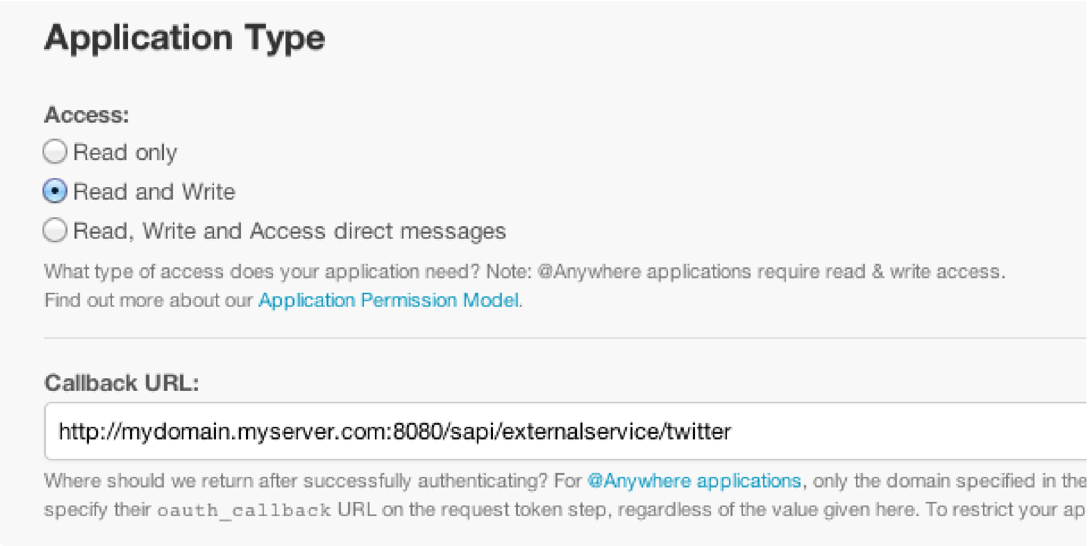
7. Activate the **`Settings`** tab:

Figure 8.34. Settings tab



8. Change the **`Application Type`** to **`Read and write`** and change the **`Callback URL`**, then click on **`Update this Twitter application's settings`**:

Figure 8.35. Application Type



Application Type

Access:

○ Read only

● Read and Write

○ Read, Write and Access direct messages

What type of access does your application need? Note: @Anywhere applications require read & write access.
Find out more about our Application Permission Model.

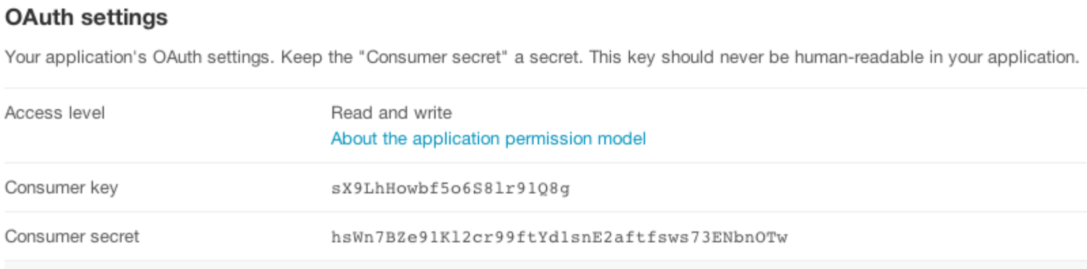
Callback URL:

http://mydomain.myserver.com:8080/sapi/externalservice/twitter

Where should we return after successfully authenticating? For @Anywhere applications, only the domain specified in the
specify their oauth_callback URL on the request token step, regardless of the value given here. To restrict your ap

9. Activate the application's **`Details`** tab and take note of the **`Consumer key`** and **`Consumer secret`**. These are the values you have to put into the quick configuration `config.properties` as `twitter.key` and `twitter.secret`:

Figure 8.36. Details tab



OAuth settings

Your application's OAuth settings. Keep the "Consumer secret" a secret. This key should never be human-readable in your application.

Access level	Read and write About the application permission model
Consumer key	sX9LhHowbf5o6S8lr91Q8g
Consumer secret	hsWn7BZe91Kl2cr99ftYdlsnE2aftfsws73ENbnOTw

8.4 Configuring the Portal

In order for the above steps to be effective, you are required to add or change the following lines in the configuration file `<`*`root directory of your OneMediaHub installation`*`>/bin/config.properties`:

```
${facebook.secret}=<Your Facebook application "Secret">
${facebook.id}=<Your Facebook application "Application ID">
${flickr.key}=<Your Flickr application "Key">
${flickr.secret}=<Your Flickr application "Secret">
${google.id}=<Your Google application "client_id">
${google.secret}=<Your Google application "client_secret">
${twitter.key}=<The "Consumer Key" of your Twitter application>
${twitter.secret}=<The "Consumer Secret" of your Twitter application>
${youtube.key}=<Your Google application "API key">
```

Run the `<root directory of your OneMediaHub installation>/bin/configure-portal` script and restart the Portal.

Note

> Make sure all spaces before and after the app key and the secret are removed when inserting them into the configuration file.

8.5 Troubleshooting

The configuration of the external services is not simple and can be affected by many external deployment issues. Typically, most of the issues are related to some misconfiguration of the service properties (the keys), or to some network problem. Assuming that you already generated all the new keys for the new URL, the best way to narrow down the issue is to configure all the services and then test which ones do not work, as there are some usually standard patterns:

One service only does not work
: Check the configuration of the specific service following the latest documentation available and pay special attention to the advanced settings or backward compatibility properties (and to their default values that sometimes change.) As all other services work, incoming/outgoing HTTP calls to/from the server are not usually the issue.

Picasa, YouTube, and Google import do not work, but all other services do
: You need to make sure that the Google external services authorization keys were correctly defined on the Google cloud console as explained in this chapter. Also check the corresponding property entries in the `<root directory of your OneMediaHub installation>/bin/config.properties` file.

Picasa and Google contacts/calendar import works, but YouTube does not
: Check the configuration for the YouTube service, according to the explanation given in this chapter. It is likely that the configuration property for the particular service is wrong.

Facebook and Twitter do not work, but Picasa does
: Review the configuration explanation for these services in this chapter. Check the corresponding client ID and client secret in the `<root directory of your OneMediaHub installation>/bin/config.properties` file, as mentioned at Section 8.4, “Configuring the Portal”.

None of the services works
: Check that the application server has direct access to the Internet and if there is any proxy configured (a `curl` request might help.) So this is likely a configuration issue on incoming/outgoing HTTP requests.

Facebook works from the Portal, but not from the mobile device
: Make sure that the iPhone App Store ID and Android App key hash are correctly set up in the Facebook configuration page.

There are other corner cases or you might have an overlap (the domain name/machine is not reachable from the outside, or the callback URL is blocked by a proxy or firewall), but the ones above are the most common scenarios.

Chapter 9. OneMediaHub Server URL configuration

9.1 Introduction

This section reviews how some possible URL configurations of the OneMediaHub Server instance affect the functionality of the external services integrated into the portal.

The considered scenarios are:

- server available on two (or more) different URLs,
- server with a new URL but with the same IP address, and
- server with the same URL but with a new IP address.

Regarding external services integration, OneMediaHub makes it possible to:

- authenticate on external services (Picasa, Flickr, Facebook),
- upload a picture to external services (Picasa, Flickr, Facebook),
- get/create albums on external services (Picasa, Flickr, Facebook),
- import friends' profile photos from Facebook.

9.1.1 Conventions

In this section, the *portal configuration* means the set of configuration files that are used server side on OneMediaHub. For details, see Section 3.12, “Portal configuration”.

The *external configuration* means the configuration of external services applications that is set up on the external services side. For details, see Chapter 8, *Configuring External Services*.

9.2 Server available on two different URLs

Consider a server configured to work with the URL `my.server.com`; now consider a new URL `new.newserver.com` pointing to the same location as `my.server.com`.

In general, it is not possible to have the same server responding to different URLs. If needed, you can work around this by having a proxy redirecting any request to the main URL (the one used in the external service configuration).

9.3 Server with a new URL (same IP address)

Consider a server configured to work with the URL `my.newserver.com`; now consider changing the URL to `new.server.com`. The old URL `my.newserver.com` is no longer responding, while the portal configuration has changed to work with the new URL.

It is possible to change the server URL by ensuring you change the URL used in the external service configuration:

```
portal configuration: new.server.com
```

```
external configuration: new.server.com
```

9.4 Server with a new IP address (same URL)

Consider a server configured to work with the URL `my.newserver.com`, which points to an IP address; now consider changing the IP address, which the URL points to. The old IP is not responding anymore.

Changing the server IP without changing the URL does not affect the external services functionality.

9.5 Changing external service settings

The configuration for the different services might need changes in the callback URL or domain validation. In order to modify your settings, refer to Chapter 8, *Configuring External Services*.

Appendix A. Default Ports used by OneMediaHub

The following table lists all the default ports used by OneMediaHub and the configuration files in which they appear.

Note

All the listed ports are inbound ports.

Port number	Used in file	Code snippet
3101	`bin/pim-listener`	`JMX_PORT=3101`
8005	`portal/conf/server.xml`	`<Server port="8005" shutdown="SHUTDOWN">`
8080	`com/funambol/pimlistener/PIMListenerConfiguration.xml`	`<string>http://localhost:8080/funambol/services/admin</string>`
8080	`portal/portal-ext.properties`	`sp.syncportal.email.guess.webserver.url=http://localhost:8080/funambol/services/email`
8080	`portal/portal-ext.properties`	`sp.syncportal.url=http://xx.xx.xx.xx:8080`
8080	`portal/portal-ext.properties`	`sp.syncportal.messages.url=xx.xx.xx.xx:8080`
8080	`portal/conf/server.xml`	`<Connector port="8080" protocol="HTTP/1.1" connectionTimeout="20000" redirectPort="8443" />`
8101	`bin/funambol-server`	`JMX_PORT=8101`
43101	`config/jgroups-pimlistener.xml`	`mcast_port="${jgroups.udp.mcast_port:43101}"`

Appendix B. Device IDs

The following table lists all available device IDs:

Device ID prefix	Device
OneMediaHub client Apps	
fbb-	OneMediaHub for BlackBerry
fol-	OneMediaHub for Windows
iph-	OneMediaHub for iPhone
ipt-	OneMediaHub for iPod Touch
ipad-	OneMediaHub for iPad
fac-	OneMediaHub for Android
mox-	OneMediaHub for Mac OS
Community Projects	
fmz-	Mozilla Sync Client
fgp-	Google Sync Client
fyp-	Yahoo Sync Client
fjp-	Jajah Sync Client
fip-	iPod Sync Client

Appendix C. OneMediaHub error messages

The following sections list the most critical error messages for each OneMediaHub component.

It is possible to recognize which kind of error has been trapped by matching the *Error message* column of the following tables with the first row contained in the received notification.

If you wish to report additional error messages, please contact `<customer.support@funambol.com>`.

Data Synchronization Service

This section describes the most common error messages returned by the `DS Service` and captured in the log files stored in the directory *`<root directory of your OneMediaHub installation>/`*`logs/ds-server/`.

Error message	Description
`com.funambol.framework.server.store.NotFoundException: Source not found for scal`	The client is syncing a `SyncSource` URI (in this case 'scal') whose configuration does not exist on the server. Check the sync source name specified for the client and the ones available on the server (you can also refer to the OneMediaHub database table `fnbl_sync_source`).

`java.lang.Exception: Content type unknown: text/x-vcalendar`	The content type associated with the `SyncSource` that the client is syncing is different from the content type of the item sent by client.
	Example:
	`com.funambol.framework.engine.source.SyncSourceException: Error retrieving all item keys from twin.`
	`at com.funambol.json.engine.source.ContactSyncSource.getSyncItemKeysFromTwin(ContactSyncSource.java:696)`
	`....`
	`Caused by: java.lang.Exception: Content type unknown: text/x-vcalendar`
	In this case, the client is syncing using the Contact `SyncSource` but the sent item's content is in `text/x-vcalendar` format instead of `text/x-vcard`.

Error message	Description
`java.text.ParseException: Unparseable date: "false"`	The server is not able to handle the given date (in this case, the date value is 'false'). Usually, the supported formats are (see ISO 8601): • "`yyyyMMdd'T'HHmmss'Z'`" (zulu time) • "`yyyyMMdd'T'HHmmss`" (local time) • "`yyyyMMdd`" (all day local time) • "`yyyy-MM-dd`"
`com.funambol.json.exception.MalformedJsonContentException: The Json content is malformed!`	The JSON parser is unable to parse the content of the JSON returned by the backend. The causes of this exception could be: • `net.sf.json.JSONException: null object` The JSON object does not contain a mandatory property (usually the property 'key'). • `com.funambol.json.exception.JsonConversionException: Error in the zuluToLocalConversion.Unparseable date: "20100330T000000"` The date is not in UTC format ("`yyyyMMdd'T'HHmmss'Z'`") but it is already in local time format ("`yyyyMMdd'T'HHmmss`").
`com.funambol.json.exception.BadRequestException`	The JSON object returned by the backend contains a `Status Code 406` which means that the backend is unable to perform the operation. It is possible to identify the root cause by looking at the backend response.
`com.funambol.json.exception.InternalServerErrorException`	The JSON object returned by the backend contains a `Status Code 500` which means that the backend is unable to perform the operation for an internal issues. It is possible to identify the root cause by looking at the backend response.
`com.funambol.json.exception.UnauthorizedException`	The JSON object returned by the backend contains a `Status Code 401` which means that the backend cannot perform the operation because the request has been sent by an unauthenticated client.

OneMediaHub for BlackBerry

This section describes the most common error messages returned by the OneMediaHub for BlackBerry in the log files stored in the directory `/home/user/synclog.txt` and `/home/user/synclog.txt.sav.txt`.

Error message	Description
`[ERROR] SIFEventHelper.addEvent() on field [PatternEndDate]. Exception -> java.lang.NumberFormatException: null`	This error indicates that an Event in SIF format does not have a valid `PatternEndDate`. A possible cause is that the date is not formatted as expected. Supported formats are: • `yyyyMMddTHHmmssZ` • `yyyyMMddTHHmmss` • `yyyyMMdd` • `yyyy-MM-ddTHH:mm:ssZ` • `yyyy-MM-ddTHH:mm:ss` Another possibility is that an old version of the client is being used.
`[ERROR] PIMException while adding item to SyncSource [calendar]: general error`	This is a very generic error. In general the source of the problem is somewhere else and the log should contain other messages pointing to the specific problem. When an item is added to the device, the operation can fail for various reasons. For example, the item has an unrecognized format (SIF items must be base64-encoded), or the item has at least one field which the client cannot parse properly.
`[ERROR] Unable to save updated item in source [contact]: item not found`	The server sent an `update` command for a contact that the client cannot find. This can generate conflicts during the synchronization or a bug client/server side where LUIDs are not properly handled.
`'Com_1und1_sync_client-Blackberry: Class'java.microedition.io.file.FileConnection' not found'`	In general, all errors where the application cannot find a standard system class are due to an unsupported version of the device's OS.
`[ERROR] Empty content from SyncSource for item:xxxxxxxxxxxxx`	The client is trying to sync an item which is empty. This is not necessarily an error. It is possible that the user created an item only with fields that are not supported by the sync, but it can also indicate a bug in the client which is unable to format an item.
`com.funambol.json.exception.InternalServerErrorException[HttpTransportAgent.readResponse] Error reading server response --> net.rim.device.api.io.`	This is a network error. The client was able to write a request, but did not receive an answer. Instead, the network connection was closed.

Error message	Description
`ConnectionClosedException: Connection closed`	

`[ERROR] [HttpTransportAgent - ConnectionTimer] An IO operation did not complete before maximum allowed time`
 	
`JVM Error 545`
	This is a network timeout error. Depending on OS and carriers, the behaviors may differ. In general, each device has a timeout value ranging from 1 to 5 minutes. After the client writes its request, it returns an error if no answer is received before the timeout has elapsed.
	
	When this error is systematic it is important to check why. It is very likely that the device's OS is corrupted; this error is not specific to the OneMediaHub application. Many BlackBerry devices report this condition without the OneMediaHub client App installed. The suggested fix is to wipe the device and reinstall the OS.

`[ERROR] calendar returned an item that exceeds max msg size and should be dropped`	This is not an error but just a warning. The message is at `INFO`.

OneMediaHub for Windows

This section describes some of the most common error messages returned by the OneMediaHub for Windows and captured in the log file stored in the user's documents&settings directory: `%APPDATA%\Funambol\WindowsClient\synclog.txt`.

Error message	Description

`[DEBUG] - Initialize COM library`
`[DEBUG] - Create Outlook.Application instance...`
`[ERROR] - COM Pointer Error. Code = xxxxxxxx`
`[ERROR] - Unable to instantiate Microsoft Outlook. Please check if Outlook is installed and correctly configured.`
	The OneMediaHub for Windows is not able to access Microsoft Outlook APIs, which are used to read/write data in Outlook. In other words, the Outlook application is blocking access to its data.
	
	This may happen for different reasons; below are some possible solutions:
	
	• Open the Outlook UI: if a wizard window appears prompting you to configure your profile, this was most likely the cause. Solution: follow the wizard until the end. When your profile is configured, retry the sync.
	
	• Check if Outlook is working correctly and not stuck. In case of the latter, close Outlook and then check if the process `OUTLOOK.EXE` is still running using the Windows Task Manager (if so, you can terminate the process from there).
	
	• If you have an antivirus software installed, disable it and try again. Some antivirus software can recognize the attempt of the OneMediaHub client App to access Outlook as a malicious action, and block it.

Error message	Description
	• If you have other Outlook add-ons installed, disable them (or remove them) and try again. Add-ons can access Outlook in a (wrong) way that could block other applications trying to do the same. • Google Desktop Search and Nokia PC Suite may conflict with the OneMediaHub for Windows. This does not happen to all users, but you may need to uninstall these applications and try again. **Note** Any software accessing Outlook data can be a potential conflicting application; those mentioned above have been pointed out by several community members. • Microsoft Office 2010 beta may conflict with the OneMediaHub for Windows. This does not happen to all users. Possible solution: check the registry keys (using regedit): `HKEY_CLASSES_ROOT/TypeLib/{00062FFF-0000-0000-C000-000000000046}` If a key `9.4` is present, remove it and retry syncing with the OneMediaHub for Windows. • Finally, try reinstalling Microsoft Outlook. It could be that Outlook had become unstable and has stopped working as it should.

`[INFO] - Outlook session opened successfully!`
`[ERROR] - COM Pointer Error. Code = xxxxxxxx`
`[ERROR] - Outlook Exception. - Unable to initialize Outlook Folder.`
	Microsoft Outlook APIs are not accessible. Please refer to the previous error in this table for possible reasons and solutions.

`[ERROR] - COM Pointer Error. Code = xxxxxxxx`
`[ERROR] - Outlook Exception. - Error setting property <prop name> = <prop value> for item <item type>.`
`[ERROR] - Error setting properties of <item type> item "(new item)". Item not saved.`
	An item could not be saved to Outlook, because the property `<prop name>` received is not in an accepted format, causing Microsoft Outlook to throw an exception and refuse to insert the new item.
	In most cases this happens because the item's data is corrupted; the solution is to delete and recreate this item on the portal.

`[ERROR] - Item #232 in folder "Calendar" is not a appointment`	An item that should be a Calendar item (in this case) is not recognized by the methods used to retrieve

Error message	Description
item. Please check if Outlook is working properly!	this type of item. The item could be corrupted and also the integrity of Microsoft Outlook should also be verified.
[INFO] - Network error writing data from client: retry 3 time... [ERROR] - HTTP request error: 3 attempts failed. [DEBUG] - Error occurred in sync: code 3 = HTTP request error: 3 attempts failed. [ERROR] - Error in preparing sync: HTTP request error: 3 attempts failed. 13:07:04 GMT +1:00 [INFO] - SYNCHRONIZATION REPORT ================ SYNCHRONIZATION COMPLETED WITH ERRORS ----------------------------------- Last error message = "HTTP request error: 3 attempts failed." Last error code = 2001	The client has problems connecting to the server due to HTTP connection issues; for example, it could be due to a temporary lack of connectivity. The client makes three attempts to understand if it is possible to establish the connection, and then fails. The issue should be resolved by checking the network.
[ERROR] - AlertStatus from server 404 [DEBUG] - Error occurred in sync: code 3 = AlertStatus from server 404 [ERROR] - Error in preparing sync: AlertStatus from server 404 [INFO] - SYNCHRONIZATION REPORT ================ SYNCHRONIZATION COMPLETED WITH ERRORS ----------------------------------- Last error message = "AlertStatus from server 404" Last error code = 404 Calendar: --------- Sync failed: AlertStatus from server 404 (code = 404)	The source you are trying to sync is not found on the server (404 is the generic code for “Not Found”). The cause is probably a wrong configuration of the sync source name on the client or on the server. Example: the calendar sync source on the client is called “cal” and on the server it is called “scal”. The client attempts to find “cal” but the server returns 404 “not found” because it does not exist. The issue should be resolved by checking the configured sync source name on the client and on the server.
Error Signature: EventType : BEX P1 : OutlookPlugin.exe P2 : 1.0.0.1 P3 : 49d4d31d P4 : winmainclientdll.dll P5 : 0.0.0.0 P6 : 49d4d2fd P7 : 0005da8b	This error may be displayed if there is a conflict with another installed software, usually an anti-virus application, security suite or firewall. Possible solution: disable/uninstall the conflicting application.

Error message	Description
`P8 : c0000409 P9 : 00000000`	
Installing the OneMediaHub for Windows on Windows 2000 (or 2003) I get the following error: “Entry point not found. The procedure entry point TzSpecificLocalTimeToSystemTime could not be located in the dynamic link library KERNEL32.dll”	`Windows 2000` and `Windows 2003` are not supported. The OneMediaHub for Windows is compatible with: • Outlook XP (2002) Outlook 2003, Outlook 2007 or later • `Windows XP`, `Windows Vista`, `Windows 7` or later
Installing the OneMediaHub for Windows on a `Windows Vista` 64 bit: the install wizard runs, but there is no UI.	64 bit platforms are not currently supported.
The manual sync works fine, but the scheduled sync fails to start when using Windows Vista. The error message displayed is “cannot schedule”.	It may be related to the fact that Outlook is not running with administrator privileges. Possible solution: • Navigate to `C:\Program Files\Microsoft Office\Office12` • Look for OUTLOOK.exe, right-click on it and select **Properties**. • Go to the **Compatibility** tab and check **Run this program as an administrator**. Try scheduling again.

Appendix D. FUNAMBOL-LOGGING-MIB.txt

```
FUNAMBOL-LOGGING-MIB DEFINITIONS ::= BEGIN
IMPORTS
    MODULE-IDENTITY,
    OBJECT-TYPE,
    NOTIFICATION-TYPE,
    enterprises                          FROM SNMPv2-SMI
    TEXTUAL-CONVENTION,
    DateAndTime                          FROM SNMPv2-TC
    SnmpAdminString                      FROM SNMP-FRAMEWORK-MIB
    MODULE-COMPLIANCE,
    OBJECT-GROUP,
    NOTIFICATION-GROUP                   FROM SNMPv2-CONF;
funambolLoggingMIB MODULE-IDENTITY
    LAST-UPDATED "200610290000Z"            -- November 29, 2006
    ORGANIZATION "Funambol, Inc."
    CONTACT-INFO "643 Bair Island Road, Suite 305
                  Redwood City, CA 94063 ( USA)
                  Tel.: +1 650 587 4570
                  Fax: +1 650 701 1484
                  Email: harrie@funambol.com"
    DESCRIPTION
     "The MIB module for logging SNMP Notifications"
     -- Revision History
       REVISION     "200610290000Z"          -- November 29, 2006
       DESCRIPTION  "This is the initial version of this MIB."
    ::= { enterprises funambol(27219) 2 }
funambolLoggingMIBObjects OBJECT IDENTIFIER ::= { funambolLoggingMIB 1 }
--
--
--
FunambolLogLevel ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "The level of which the log message was provided by the Funambol
 DS Server."
    SYNTAX   INTEGER { fatal(0),
                       error(1),
                       warn(2),
                       info(3),
                       debug(4),
                       trace(5)}  - values should be changed in those of
 Level class.
funambolLoggingDateAndTime OBJECT-TYPE
    SYNTAX     DateAndTime
    MAX-ACCESS accessible-for-notify
    STATUS     current
    DESCRIPTION
     "The date and time when the log was invoked by the
      Funambol DS Server."
    ::= { funambolLoggingMIBObjects 1 }
funambolLoggingLevel OBJECT-TYPE
```

```
    SYNTAX     FunambolLogLevel
    MAX-ACCESS accessible-for-notify
    STATUS     current
    DESCRIPTION
     "The level of the log message."
    ::= { funambolLoggingMIBObjects 2 }
funambolLoggingName OBJECT-TYPE
    SYNTAX     SnmpAdminString
    MAX-ACCESS accessible-for-notify
    STATUS     current
    DESCRIPTION
     "The name of the logger that invoked the notification."
    ::= { funambolLoggingMIBObjects 3 }
funambolLoggingSessionId OBJECT-TYPE
    SYNTAX     SnmpAdminString
    MAX-ACCESS accessible-for-notify
    STATUS     current
    DESCRIPTION
     "The session id that identifies the SyncML session
      that invoked the log message."
    ::= { funambolLoggingMIBObjects 4 }
funambolLoggingDeviceId OBJECT-TYPE
    SYNTAX     SnmpAdminString (SIZE(0..32))
    MAX-ACCESS accessible-for-notify
    STATUS     current
    DESCRIPTION
     "The device id that identifies the device used
     for the SyncML session that invoked the log message."
    ::= { funambolLoggingMIBObjects 5 }
funambolLoggingUser OBJECT-TYPE
    SYNTAX     SnmpAdminString
    MAX-ACCESS accessible-for-notify
    STATUS     current
    DESCRIPTION
     "The user that started the SyncML session
      causing this log message."
    ::= { funambolLoggingMIBObjects 6 }
funambolLoggingSourceUri OBJECT-TYPE
    SYNTAX     SnmpAdminString
    MAX-ACCESS accessible-for-notify
    STATUS     current
    DESCRIPTION
     "The database that identifies the SyncML session
      that invoked the log message."
    ::= { funambolLoggingMIBObjects 7 }
funambolLoggingMessage OBJECT-TYPE
    SYNTAX     SnmpAdminString
    MAX-ACCESS accessible-for-notify
    STATUS     current
    DESCRIPTION
     "The log message."
    ::= { funambolLoggingMIBObjects 8 }
funambolLoggingNotificationsPrefix  OBJECT IDENTIFIER ::=
 { funambolLoggingMIB 2 }
```

```
funambolLoggingNotifications OBJECT IDENTIFIER ::=
 { funambolLoggingNotificationsPrefix 0 }
funambolLoggingNotificationsObjects  OBJECT IDENTIFIER ::=
 { funambolLoggingNotificationsPrefix 1 }
funambolLoggingNotification NOTIFICATION-TYPE
    OBJECTS {
       funambolLoggingDateAndTime,
       funambolLoggingLevel,
       funambolLoggingSessionId,
       funambolLoggingDeviceId,
       funambolLoggingUser,
       funambolLoggingSourceUri,
       funambolLoggingMessage
    }
    STATUS  current
    DESCRIPTION
        "Notification that defines the logging invoked."
    ::= { funambolLoggingNotifications 1 }
funambolLoggingMIBConformance OBJECT IDENTIFIER ::= { funambolLoggingMIB
 3 }
funambolLoggingMIBCompliances OBJECT IDENTIFIER ::=
 { funambolLoggingMIBConformance 1 }
funambolLoggingMIBGroups      OBJECT IDENTIFIER ::=
 { funambolLoggingMIBConformance 2 }
funambolLoggingMIBCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION "full compliance"
    MODULE -- this module
        MANDATORY-GROUPS {
            funambolLoggingObjectGroup }
    ::= { funambolLoggingMIBCompliances 1 }
funambolLoggingObjectGroup OBJECT-GROUP
    OBJECTS {
       funambolLoggingDateAndTime,
       funambolLoggingLevel,
       funambolLoggingName,
       funambolLoggingSessionId,
       funambolLoggingDeviceId,
       funambolLoggingUser,
       funambolLoggingSourceUri,
       funambolLoggingMessage
    }
    STATUS  current
    DESCRIPTION
        "The logging group"
    ::= { funambolLoggingMIBGroups 1 }
funambolLoggingNotificationGroup NOTIFICATION-GROUP
    NOTIFICATIONS {
        funambolLoggingNotification
    }
    STATUS current
    DESCRIPTION
                "Notifications."
    ::= { funambolLoggingMIBGroups 2 }
END
```

Appendix E. Database Schema

E.1 OneMediaHub Core

The *Core* database is described at Chapter 6, *Database partitioning*.

E.1.1 Contact_

`Contact_` stores personal information about the registered user, as first name and last name. Main fields used by the OneMediaHub are:

Contact_			
Column	**Type**	**Constraints**	**Description**
contactid	character varying(75)	PK	Incremental contact ID
userid	character varying(75)	FK	The user ID, aka username
firstname	character varying(75)		The user first name
middlename	character varying(75)		The user middle name
lastname	character varying(75)		The user last name
(...)			

E.1.2 Country

`Country` stores information about the countries in the world. Used by the OneMediaHub to support the carriers (`fp_carrier`) worldwide.

Country			
Column	**Type**	**Constraints**	**Description**
countryid	character varying(75)	NOT NULL	The country ID
name	character varying(75)		The country name (e.g. `United States`)
a2	character varying(75)	UNIQUE	The country code in *ISO 3166-1 alpha-2* format (e.g. `US`)
a3	character varying(75)	UNIQUE	The country code in *ISO 3166-1 alpha-3* format (e.g. `USA`)
number_	character varying(75)	UNIQUE	The country code in *ISO 3166-1 numeric* format (e.g. `840`)
idd_	character varying(75)		The country calling code. The Caribbean nations in zone 1 include the area codes.
active_	boolean		`false` if the given country is not active

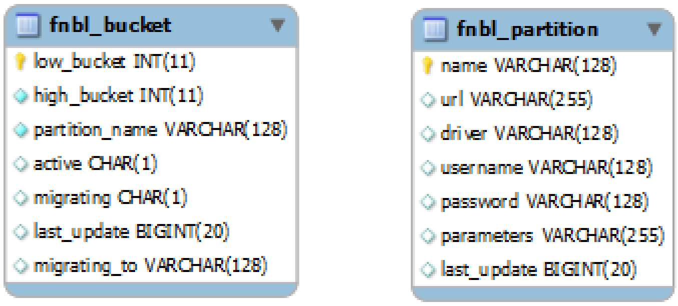
E.1.3 fnbl_bucket

`fnbl_bucket` contains information about the data partitioning.

fnbl_bucket			
Column	**Type**	**Constraints**	**Description**
low_bucket	integer	NOT NULL, PK	Identifies (with `high_bucket`) the bucket range for a partition.
high_bucket	integer	NOT NULL	Identifies (with `low_bucket`) the bucket range for a partition.
partition_name	varchar(128)	NOT NULL	The name of the partition to use for the buckets in the range.
active	char(1)	default 'Y'	Indicates if a partition is active. If an entry is not active, all access requests are rejected.
migrating	char(1)	default 'N'	Indicates if the buckets are migrating to another partition.
last_update	bigint		The time when the last modification was made.
migrating_to	varchar(128)		Indicates the partition where the buckets are migrating to.

E.1.4 Partitioning Schema

Figure E.1. Partitioning schema



For detailed information on the partitioning tables, please refer to the Chapter 6, *Database partitioning*.

E.1.5 fnbl_connector

`fnbl_connector` contains information about the connector configuration.

fnbl_connector			
Column	**Type**	**Constraints**	**Description**
id	varchar(128)	PK, NOT NULL	Connector ID
name	varchar(200)	NOT NULL	Connector name
description	varchar(200)		Connector description
admin_class	varchar(255)		Connector configuration panel Java class name (with complete path)

E.1.6 fnbl_connector_source_type

`fnbl_connector_source_type` contains the link between connector and sync source type.

fnbl_connector_source_type			
Column	**Type**	**Constraints**	**Description**
connector	varchar(128)	PK, NOT NULL	Connector ID
sourcetype	varchar(128)	PK, NOT NULL	Source Type ID

E.1.7 fnbl_country_language

`fnbl_country_language` stores the mapping between the `Country` table and the `Accept-Language` header to be able to decode the default locale for the user.

fnbl_country_language			
Column	**Type**	**Constraints**	**Description**
language	varchar(75)	PK	The language (e.g. `en-us`, `it-it`)
countryid	varchar(75)	FK(Country)	The ID of the country

E.1.8 fnbl_country_timezones

`fnbl_country_timezones` is a view to map the country's unique numeric ID with the `country_code` in `fnbl_timezones`.

```
CREATE VIEW fnbl_country_timezones AS
    SELECT c.countryid, c.a2 AS country_code, c.name, tz.timezone,
      tz.is_default
    FROM country c LEFT OUTER JOIN fp_timezone tz ON (c.a2 =
      tz.country_code);
```

E.1.9 fnbl_deleted_sync_user_role

The table `fnbl_deleted_sync_user_role` keeps track of the deleted users with role `sync_user`.

fnbl_deleted_sync_user_role			
Column	**Type**	**Constraints**	**Description**
userid	varchar(255)	PK	The username

E.1.10 fnbl_deleted_user

The table `fnbl_deleted_user` keeps track of the deleted users.

fnbl_deleted_user			
Column	**Type**	**Constraints**	**Description**
userid	character varying(75)		The username
delete_date	timestamp (without time zone)		When the user was deleted
is_sync_user	boolean		If the user has role `sync_user`. Default: `true`

E.1.11 fnbl_device

`fnbl_device` contains information about the device, like nonce for MD5 authentication, the device timezone and charset, and the flag that tell if it is needed to convert the date sent by device to the specified timezone, the sender and builder for notification and the capabilities ID (per default it is `-1`).

fnbl_device			
Column	**Type**	**Constraints**	**Description**
id	varchar(128)	PK, NOT NULL	Device ID
description	varchar(255)		Description
type	varchar(255)		Device type
client_nonce	varchar(255)		Nonce for MD5 client authentication
server_nonce	varchar(255)		Nonce for MD5 server authentication
server_password	varchar(255)		Password for server authentication
timezone	varchar(32)		Device timezone
convert_date	char(1)		Should the date sent by the device be converted to the specified device timezone?
charset	varchar(16)		Device charset
address	varchar(50)		Device IP (if applicable)
msisdn	varchar(50)		Device MSISDN (if applicable)
notification_builder	varchar(255)		Builder for notification message
notification_sender	varchar(255)		Sender for notification message
push_token	varchar(255)		Contains the cloud push token registered for the device

E.1.12 fnbl_device_caps

`fnbl_device_caps` contains the capabilities ID and general information about the device.

fnbl_device_caps			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK, NOT NULL	Capabilities ID
version	varchar(16)	NOT NULL	Version number
man	varchar(100)		Manufacturer
model	varchar(100)		Software product/ component
fwv	varchar(100)		Firmware version number
swv	varchar(100)		Software version number
hwv	varchar(100)		Hardware version number
utc	char(1)	NOT NULL	Does device support UTC?
lo	char(1)	NOT NULL	Does device support large object handling?
noc	char(1)	NOT NULL	Does device support number of changes property?
device_id	varchar(128)	FK(fnbl_device)	The device ID this capability refers to

E.1.13 fnbl_device_datastore

`fnbl_device_datastore` contains the list of datastores supported by the device.

fnbl_device_datastore			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK, NOT NULL	Datastore ID
caps	bigint	FK(fnbl_device_caps)	Capabilities ID
sourceref	varchar(128)	NOT NULL	Source URI
label	varchar(128)		Datastore display name
maxguidsize	integer		Maximum size of GUID
dsmem	char(1)	NOT NULL	Is DSMem element specified?
shs	char(1)	NOT NULL	Is datastore memory shared?
synccap	varchar(32)	NOT NULL	Synchronization capabilities for the datastore

Column	Type	Constraints	Description
rx_type	varchar(64)	NOT NULL	Type of supported content type received by the device
rx_version	varchar(16)	NOT NULL	Version of supported content type received by the device

E.1.14 fnbl_email_account

`fnbl_email_account` contains information about the user account. The users will be inserted into the `user_` table.

fnbl_email_account			
Column	**Type**	**Constraints**	**Description**
account_id	bigint	PK, NOT NULL	Account ID
username	varchar(50)	PK, NOT NULL	User ID
ms_login	varchar(50)	NOT NULL	Username of the account on the mail server
ms_password	varchar(50)	NOT NULL	Password of the account on the mail server. The password will be encrypted with a special key
ms_address	varchar(70)	NOT NULL	Email address on the mail server
mailserver_id	varchar(20)	NOT NULL	Mail server ID
server_public	char		Is the email server public?
server_type	varchar(20)		Mail server type - Exchange - Domino - Courier - Other
description	varchar(50)		Description of the mail server
protocol	varchar(5)		Protocol type (IMAP or POP3)
sslin	char		Is incoming server SSL?
sslout	char		Is outgoing server SSL?
out_login	varchar(50)		SMTP username for authentication
out_password	varchar(50)		SMTP password for authentication

E.1.15 fnbl_email_enable_account

`fnbl_email_enable_account` contains the link between user and mail server account.

fnbl_email_enable_account			
Column	**Type**	**Constraints**	**Description**
account_id	bigint	PK, NOT NULL	Account ID
username	varchar(50)	PK, NOT NULL	User ID

E.1.16 fnbl_external_service

`fnbl_external_service` contains information about external portals like Facebook, Flickr, Picasa. With these external services OneMediaHub exchanges pictures.

fnbl_external_service			
Column	**Type**	**Constraints**	**Description**
service_name	varchar(255)	NOT NULL, PK	Service code
display_name	varchar(255)	NOT NULL	Description
icon_url	varchar(1024)		URL with the logo of the service
success_url	varchar(1024)		URL with the success icon in the service-like format
error_url	varchar(1024)		URL with the error icon in the service-like format

E.1.17 fnbl_external_service_account

`fnbl_external_service_account` contains the link between the user and the external services with the authorization tokens for the services.

fnbl_external_service_account			
Column	**Type**	**Constraints**	**Description**
id	bigint(20)	NOT NULL, PK	Incremental ID
service_name	varchar(255)	NOT NULL, UNIQUE with `userid`	Service code, for example `flickr` or `picasa`
userid	varchar(255)	NOT NULL, UNIQUE with `service_name`	Username of the user enabled on the service
token	varchar(255)		Token of the service system
auth_time	bigint(20)		When the token was created
expire_time	bigint(20)		When the token expires, NULL if it does not expire
account_name	varchar(255)		Account name on the service system

Column	Type	Constraints	Description
autoupload_album	varchar(255)		(future use)
autoupload_privacy	varchar(255)		(future use)
autoupload_enabled	tinyint(1)		(future use)
last_used_album	varchar(255)		Last used album for the given service
last_used_privacy	varchar(255)		Privacy status of the last used album

E.1.18 fnbl_family

`fnbl_family` stores informations regarding the family of users.

fnbl_family			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	Incremental family ID
external_id	varchar(255)	UNIQUE	Unique external identifier of the family
name	varchar(255)	NOT NULL	Name of the family

E.1.19 fnbl_family_user

`fnbl_family_user` stores the mapping between family and users of the family.

fnbl_family_user			
Column	**Type**	**Constraints**	**Description**
family_id	bigint	PK, FK	Identifier of the family
userid	varchar(255)	PK, FK	User ID of the user that belongs to the family

E.1.20 fnbl_file_data_object_user_lock

`fnbl_file_data_object_user_lock` stores the user for handling the lock on file data objects.

fnbl_file_data_object_user_lock			
Column	**Type**	**Constraints**	**Description**
userid	varchar(255)	PK, NOT NULL, FK(User_)	The user ID, i.e. the username

E.1.21 fnbl_id

`fnbl_id` contains the value of every counter and the increment step value.

fnbl_id			
Column	**Type**	**Constraints**	**Description**
idspace	varchar(30)	PK, NOT NULL	Space ID
counter	bigint	NOT NULL	Counter

Column	Type	Constraints	Description
increment_by	int	default 100	Increment step value

E.1.22 fnbl_import_csv_commands

fnbl_import_csv_commands contains the batch file CSV commands for the import-users tool.

fnbl_import_csv_commands			
Column	**Type**	**Constraints**	**Description**
id	int(11)	PK	The command's incremental ID
ordertypesid	integer	NOT NULL	The command's operation type
contractid	varchar(255)	NOT NULL	The command's unique user identifier
eventdate	varchar(75)		The command's occurrence date
msisdn	varchar(75)	NOT NULL	The command's user phone number
brandid	varchar(75)	NOT NULL	The command's unique server identifier
productid	varchar(128)		The command's subscription plan name
email	varchar(75)		The command's user email address
usertype	varchar(5)		The command's user type for notification sending: SMS – user communications by SMS EMAIL – user communications by e-mail
importdate	timestamp	NOT NULL	The date when the command was imported
modification_date	timestamp		The date when the command was last updated
status	integer		The status code resulting from the command processing
filename	varchar(255)	NOT NULL	The original filename containing the command

E.1.23 fnbl_last_deleted_msisdn

`fnbl_last_deleted_msisdn` keeps track of the deleted phone number (*msisdn*).

fnbl_last_deleted_msisdn			
Column	**Type**	**Constraints**	**Description**
userid	varchar(255)	PK	The user
msisdn	varchar(75)	NOT NULL	The deleted phone number
delete_date	timestamp	NOT NULL	The date of the deletion

E.1.24 fnbl_last_sync

`fnbl_last_sync` contains the information about the last synchronization based on the link between principal and sync source. The type and the status of the synchronization, the last anchors, the start and end time of the synchronization are available.

fnbl_last_sync			
Column	**Type**	**Constraints**	**Description**
principal	bigint	PK, FK(fnbl_principal), NOT NULL	Principal ID
sync_source	varchar(16)	PK, FK(fnbl_sync_source), NOT NULL	Source URI
sync_type	integer	NOT NULL	Synchronization type
status	integer		Synchronization Status: 200 – OK 224 – SUSPEND
last_anchor_server	varchar(20)		Last anchor of the server
last_anchor_client	varchar(20)		Last anchor of the client
start_sync	bigint		Start time of the synchronization
end_sync	bigint		End time of the synchronization

E.1.25 fnbl_module

`fnbl_module` contains information about modules such as the Foundation Connector.

fnbl_module			
Column	**Type**	**Constraints**	**Description**
id	varchar(128)	PK, NOT NULL	Module ID
name	varchar(200)	NOT NULL	Module name
description	varchar(200)		Module description

E.1.26 fnbl_module_connector

`fnbl_module_connector` contains the link between module and connector.

fnbl_module_connector			
Column	**Type**	**Constraints**	**Description**
module	varchar(128)	PK, NOT NULL	Module ID
connector	varchar(128)	PK, NOT NULL	Connector ID

E.1.27 fnbl_partition

`fnbl_partition` contains information about the partitions.

fnbl_partition			
Column	**Type**	**Constraints**	**Description**
name	varchar(128)	NOT NULL, PK	The name of the partition.
url	varchar(128)		The URL to use when creating a connection to the partition.
driver	varchar(128)		The name of the driver class to use when creating a connection to the partition.
username	varchar(128)		The username to use when creating a connection to the partition.
password	varchar(128)		The password to use when creating a connection to the partition.
parameters	varchar(128)		The parameters to use when creating a connection to the partition (e.g. *`maxActive=3&maxIdle=3`*)
last_update	bigint		The time when the last modification was made.

E.1.28 fnbl_pim_listener_registry

`fnbl_pim_listener_registry` contains the options of the push for a specified user.

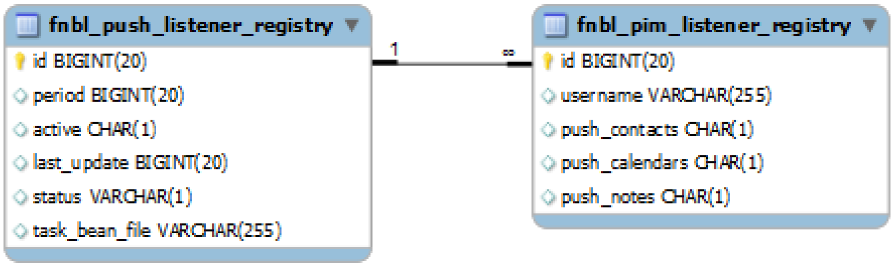
fnbl_pim_listener_registry			
Column	**Type**	**Constraints**	**Description**
id	bigint	FK(fnbl_push_listener_registry)	Push ID
username	varchar(255)		User ID

Column	Type	Constraints	Description
push_contacts	char(1)		Is the push for contacts activated?
push_calendars	char(1)		Is the push for calendar activated?
push_notes	char(1)		Is the push for notes activated?

E.1.29 PIM Push Tables Schema

The following tables allow the push system for the PIM entities

Figure E.2. PIM Push tables schema



E.1.30 fnbl_principal

`fnbl_principal` contains the principal ID that links device and username.

fnbl_principal			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK, NOT NULL	Principal ID
device	varchar(128)	FK(fnbl_device), NOT NULL	Device ID
device_link_status	char(1)	NOT NULL DEFAULT 'L'	Status of the device. Possible values are **`L`** linked **`U`** unlinked **`D`** disconnected
username	varchar(255)	NOT NULL FK(User_)	User name

E.1.31 fnbl_public_mailservers

`fnbl_public_mailservers` stores the public mail server IDs.

fnbl_public_mailservers			
Column	**Type**	**Constraints**	**Description**
mailserver_id	char(20)	PK	The mail server ID (e.g. `1`)

E.1.32 fnbl_push_listener_registry

`fnbl_push_listener_registry` contains information about the task to be executed by the push listener framework.

fnbl_push_listener_registry			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	Push listener registry ID
period	bigint		Refresh interval of the information on the source
active	char(1)		Is the task activated?
last_update	bigint		Last time task's execution
status	varchar(1)		Task's status
task_bean_file	varchar(255)		XML file representing the object of which the task is the instance

E.1.33 fnbl_push_sender_notification

`fnbl_push_sender_notification` contains information about the sent SMS notification messages.

fnbl_push_sender_notification			
Column	**Type**	**Constraints**	**Description**
id	bigint	NOT NULL	The unique identifier assigned by the DS Server
id_provider	varchar(255)		ID provided by the SMS provider (e.g. SubitoSMS)
msisdn	varchar(50)		The device phone number if any
address	varchar(50)		The device IP address if any
device	varchar(128)	NOT NULL	The device ID
notification_type	varchar(16)	NOT NULL	Notification type: SMS or TCP
status	char(1)	NOT NULL	Status: `S` (sent), `D` (delivered), `R` (refused), `E` (expired)
time	timestamp	NOT NULL	Timestamp of when the message was sent to the SMS provider

E.1.34 fnbl_role

`fnbl_role` contains the user role list and the description. Users are handled by the Liferay users, roles, groups and permissions tables.

fnbl_role			
Column	**Type**	**Constraints**	**Description**
role	varchar(128)	PK, NOT NULL	Role ID
description	varchar(200)	NOT NULL	Role description

E.1.35 fnbl_storage

`fnbl_storage` contains information about the used storage size.

fnbl_storage			
Column	**Type**	**Constraints**	**Description**
date	timestamp		Date and time of when the size has been retrieved
used	bigint(20)		Used storage size

E.1.36 fnbl_subscription_family

`fnbl_subscription_family` contains the information regarding the families of plans defined in the system. A family can group a list of defined plans.

fnbl_subscription_family			
Column	**Type**	**Constraints**	**Description**
name	varchar(50)	NOT NULL	Name of the subscription family
display_name	varchar(255)	NOT NULL	The display name of the subscription family
description	varchar(255)	NOT NULL	A description of the subscription family
is_default	char(1)	NOT NULL	0: not the default family 1: the default family

E.1.37 fnbl_subscription_payment

`fnbl_subscription_payment` contains the information about the payment done by a certain user related to a certain subscription plan.

fnbl_subscription_payment			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	The unique ID
userid	varchar(255)	NOT NULL	The user identifier

Column	Type	Constraints	Description
plan_name	varchar(50)	NOT NULL	The name of the subscription plan
transactionid	varchar(4096)		The transaction identifier
status	tinyint		The status of the payment • `0`: new • `1`: verified • `2`: invalid
assessing	char(1)	NOT NULL	• `0`: the payment is not locked • `1`: the payment is locked
row_version	int	NOT NULL	Each time an update of a row occurs, the value of this field increases by one. Used to implement optimistic concurrency
last_update	bigint	NOT NULL	Timestamp of last update
created	bigint	NOT NULL	Timestamp of when the payment was created
next_assessment	datetime		The date and time the payment should be assessed

E.1.38 fnbl_subscription_plan

`fnbl_subscription_plan` contains information about subscription plans.

fnbl_subscription_plan			
Column	**Type**	**Constraints**	**Description**
name	varchar(50)	PK	Name of the subscription plan
display_name	varchar(255)	NOT NULL	The display name of the subscription plan. This is all and only all what users see when choosing their plan from mobile apps and Portal
description	varchar(255)	NOT NULL	A description of the subscription plan
price	decimal(17,4)	NOT NULL	The price of the subscription plan
valid_from	datetime	NOT NULL	Date from when the plan is available

Column	Type	Constraints	Description
valid_until	datetime	NOT NULL	Date until when the plan is available
is_default	char(1)	NOT NULL	• 0: not the default plan • 1: the default plan
period	varchar(50)	NOT NULL	• month • year • forever • xminutes forever is the period used for subscription plans which never end. xminutes may be used for testing purposes to lower the time needed for the renewal of subscription plans
role	varchar(128)	NOT NULL	The corresponding role as it has been defined in the portal-ext.properties file
payment_type	varchar(50)		The payment method of the plan. It may be default, apple, or web
family	varchar(50)	NOT NULL	The subscription family

E.1.39 fnbl_sync_history

fnbl_sync_history relies on triggers fnbl_last_sync_after_insert and fnbl_last_sync_before_update and contains the history of the fnbl_last_sync table. The table allows to track all the SyncML and SAPI activities of the user in a given timeframe.

fnbl_sync_history			
Column	**Type**	**Constraints**	**Description**
id	bigint(20)	PK, NOT NULL, AUTO_INCREMENT	Unique ID of the row
username	varchar(255)		The user ID
principal	bigint(20)		Principal ID
device	varchar(128)		The ID of the user's device
sync_source	varchar(128)		SyncML sync source or SAPI call
sync_type	int(11)		Synchronization type

Column	Type	Constraints	Description
status	int(11)		Synchronization status
end_sync	datetime		End time of the synchronization
start_sync	datetime		Start time of the synchronization
duration	bigint(20)		Duration of the sync, (0 for SAPI requests)

E.1.40 fnbl_sync_source

`fnbl_sync_source` contains information about the sync source configuration.

fnbl_sync_source			
Column	**Type**	**Constraints**	**Description**
uri	varchar(16)	PK, NOT NULL	Source URI
config	varchar(255)	NOT NULL	Server Bean configuration
name	varchar(200)	NOT NULL	Source name
sourcetype	varchar(128)	NOT NULL	Source type

E.1.41 fnbl_sync_source_type

`fnbl_sync_source_type` contains the information about the sync source type like the class name or the configuration panel class name.

fnbl_sync_source_type			
Column	**Type**	**Constraints**	**Description**
id	varchar(128)	PK, NOT NULL	Source Type ID
description	varchar(200)		Source Type description
class	varchar(255)	NOT NULL	Source Type Java class name (with complete path)
admin_class	varchar(255)		Source Type configuration panel Java class name (with complete path)

E.1.42 fnbl_temp_paying_users

`fnbl_temp_paying_users` is a temporary table used to compute the marketing key performance indicators (KPI).

fnbl_temp_paying_users			
Column	**Type**	**Constraints**	**Description**
userid	varchar(75)	PK	The username

E.1.43 fnbl_timezone

`fnbl_timezone` stores all existing timezones for a country and defines the default one. This is used in the signup and profile configuration to define the default and available timezones for a defined country.

fnbl_timezone			
Column	**Type**	**Constraints**	**Description**
country_code	char(2)	NOT NULL FK(country)	The country ID (“US”)
timezone	varchar(50)	NOT NULL	Device's model reference
is_default	bool	DEFAULT false	Country's standard timezone

E.1.44 fnbl_user

`fnbl_user` is a view to map the `User_` and `Contact_` tables for the officer authentication. It replaces the `fnbl_user` table available in the Funambol Community Edition.

```
CREATE VIEW fnbl_user AS
    SELECT u.userid AS username, u.password_ AS password, u.emailaddress
 AS email,
           c.firstname AS first_name, c.lastname AS last_name, u.active_
 AS active
    FROM User_ u, Contact_ c
    WHERE (u.passwordreset = false AND c.userid = u.userid AND
 u.migrated='Y');
```

fnbl_user			
Column	**Type**	**Constraints**	**Description**
username			User's unique ID
password			User's password
email			User's Email address
first_name			User's first name
last_name			User's last name
active			If user is active or not

E.1.45 fnbl_user_alias

`fnbl_user` is a view to map the `User_` and `fp_device` tables for the Officer authentication.

```
CREATE VIEW fnbl_user_alias AS
    SELECT u.userid, u.emailAddress, d.phonenumber
    FROM User_ u LEFT OUTER JOIN fp_device d
    ON (u.userid=d.userid);
```

fnbl_user_alias			
Column	**Type**	**Constraints**	**Description**
userid			User's unique ID

Column	Type	Constraints	Description
emailAddress			User's Email address
phonenumber			Device's MSISDN

E.1.46 fnbl_user_picture

`fnbl_user_picture` contains the link between user and the picture of the profile.

fnbl_user_picture			
Column	**Type**	**Constraints**	**Description**
userid	varchar(255)	PK	User ID
type	varchar(64)		Picture File Type
picture	longblob		Blob with the profile picture

E.1.47 fnbl_user_preference

`fnbl_user_preference` stores the user preferences.

fnbl_user_preference			
Column	**Type**	**Constraints**	**Description**
userid	varchar(255)	PK, FK(user_), NOT NULL	The unique ID of the user
only_from_contacts	char(1)		Still not used
keep_me_informed	char(1)	DEFAULT 'y'	Specifies if the user wants to receive feedback from Portal
countryid	varchar(75)		The country's ID
allow_email	char(1)	DEFAULT 'y'	Specifies if the user has the email account disabled
referrer_id	varchar(75)		Specifies by whom the user was invited
sms_counter	smallint	DEFAULT 10	Specifies the max number of SMS that the user can use during one month
latest_sms	datetime		Specifies the date of the last SMS message received by the user
convert_tmz	char(1)	DEFAULT 'n'	Convert to this timezone feature: 0 – default, not specified 1 – force converting 2 – do not converting

Column	Type	Constraints	Description
email_counter	smallint	DEFAULT 10	Specifies the max number of email that the user can use during one month
latest_email	datetime		Specifies the date of the latest email message received by the user
last_reminder_email_date	datetime		Specifies the date on which the user should get the reminder email
sharing_email_counter	smallint	DEFAULT 0	Specifies the number of shared email sent
latest_sharing_email_counter_reset_time	datetime		Specified the latest date time the counter has been resetted
preferred_communication_channel	varchar(5)		The preferred communication channel for receiving user communications. Possible values are “email” and “sms”.
maliciousness_counter	smallint	DEFAULT 0	Number of requests to reminder thumbnails
latest_maliciousness_counter_reset_time	datetime		Specified the latest date time the maliciousness counter has been reset

E.1.48 fnbl_user_properties

`fnbl_user_properties` contains user preferences mainly for UI visualization, such as the user language, the date format, etc.

fnbl_user_properties			
Column	**Type**	**Constraints**	**Description**
userid	varchar(255)	PK	User ID
name	varchar(128)	PK	Property name
value	varchar(128)		Property value

E.1.49 fnbl_user_role

`fnbl_user_role` contains the link between username and role. Users are handled by the Liferay users, roles, groups and permissions tables.

fnbl_user_role			
Column	**Type**	**Constraints**	**Description**
username	varchar(255)	PK,	User ID

Column	Type	Constraints	Description
		FK(User_), NOT NULL	
role	varchar(128)	PK, NOT NULL	Role ID
expiry_date	timestamp		Expiration date of the role

E.1.50 fnbl_user_subscription

`fnbl_user_subscription` contains the subscription plan active for a user. A user may only have one subscription plan active at a given time.

fnbl_user_subscription			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	Unique ID for subscription plan
userid	varchar(255)	NOT NULL	The user identifier
plan_name	varchar(50)	NOT NULL	Name of the subscription plan
status	unsigned tinyint	NOT NULL	Current status of the subscription plan
created	bigint	NOT NULL	Timestamp of when the user subscription was created
last_update	bigint	NOT NULL	Timestamp of last update
next_renewal	datetime		Date and time of next subscription renewal
activated_on	datetime		Date and time of the activation of the subscription plan
assessing	char(1)	NOT NULL	• `0`: the subscription is not locked • `1`: the subscription is locked
row_version	int	NOT NULL	Each time an update of a row occurs, the value of this field increases by one. Used to implement optimistic concurrency
migrate_to_plan	varchar(50)		The name of the plan the subscription should be migrated to
next_assessment	datetime		The date and time the subscription should be assessed

Column	Type	Constraints	Description
last_status_change	datetime		Date and time the last status change occurred (i.e. the value of the field `status` changed)

E.1.51 fp_carrier

`fp_carrier` contains information about carriers.

fp_carrier			
Column	**Type**	**Constraints**	**Description**
id	serial	PK, NOT NULL	Unique carrier ID
name	varchar(75)	NOT NULL	Carrier name
countryid	varchar(75)	NOT NULL, FK(country)	Carrier's country reference
active	bool	DEFAULT true	Specifies if the carrier is active
otasupport	bool	DEFAULT true	Specifies if the carrier supports OTA settings
trusted_jam	bool	DEFAULT true	Specifies if the carrier is JAM trusted
issyncml	bool	DEFAULT true	The carrier allows SyncML synchronization

E.1.52 fp_device

`fp_device` contains info about users devices.

fp_device			
Column	**Type**	**Constraints**	**Description**
id	serial	PK, NOT NULL	Unique model ID
userid	varchar(75)	FK(user_), NOT NULL	Device's user reference
modelid	int4	FK(fp_model), NOT NULL	Device's model reference
phonenumber	varchar(75)	NOT NULL	Device's MSISDN
carrierid	int4	FK(fp_carrier), NOT NULL	Device's carrier reference
active	bool	DEFAULT true	Specifies if the model is active
last_update	bigint		Last time the device was changed

E.1.53 fp_manufacturer

`fp_manufacturer` contains information about manufacturers

fp_manufacturer			
Column	**Type**	**Constraints**	**Description**
id	serial	PK, NOT NULL	Unique manufacturer ID
name	varchar(75)	NOT NULL	Role ID
active	bool	DEFAULT true	Specifies if the manufacturer is active

E.1.54 fp_model

`fp_model` contains info about device models

fp_model			
Column	**Type**	**Constraints**	**Description**
id	serial	PK, NOT NULL	The model ID
name	varchar(75)	NOT NULL	The model name
manufacturerid	int4	FK(fp_manufacturer), NOT NULL	The manufacturer ID
otasupport	bool		Specifies if the model supports OTA settings
emailsupport	bool		Specifies if the model has an email client
pluginrequired	int2		Specifies which OneMediaHub plugin (Pocket PC/Smartphone/ none) the model supports
smssync	bool		Specifies if the device supports PIM push natively. The alternative is the no longer supported Windows Mobile client
imagefileid	varchar(75)		The name of the image file to be displayed
infofileid	varchar(75)		The name of the info file to be displayed
active	bool	DEFAULT true	Specifies if the model is active
support_contact	bool	DEFAULT true	Specifies in the OTA message if the model supports contact
support_calendar	bool	DEFAULT true	Specifies in the OTA message if the model supports calendar
support_event	bool	DEFAULT false	Specifies in the OTA message if the model supports event

Column	Type	Constraints	Description
support_todo	bool	DEFAULT false	Specifies in the OTA message if the model supports todo
support_utc	int2	DEFAULT 0	Future use (will replace the “Convert to this timezone” feature)
j2mesupport	int2		Specifies which type of the Funambol JAM client the model supports
support_utf8	bool	DEFAULT true	Specifies if the model supports UTF8
issyncml	bool	DEFAULT true	Future use (Specifies if the model supports SyncML)
trusted_jam	bool	DEFAULT true	Specifies if the model is JAM trusted

E.1.55 User_

`User_` contains information about the OneMediaHub user. Main fields used by the OneMediaHub are:

User_			
Column	**Type**	**Constraints**	**Description**
userid	character varying(75)	PK	username
createdate	timestamp without time zone		When the user was created
password_	character varying(75)		The user password
passwordreset	boolean		If true the user has to change the password, for example when he receives the PIN. Sync not available.
emailaddress	character varying(75)		User email address (mandatory in sign up)
timezoneid	character varying(75)		User time zone
active_	boolean		False if an admin user disables the user
migrated	char(1)		Support column to migrate users across different versions
loginDate	datetime		The latest date and time when the user successfully logged in
lastLoginDate	datetime		The latest date and time when the user successfully logged in

Column	Type	Constraints	Description
			before the `loginDate`, so the second latest successful login
lastExchangeDate	datetime		The latest date and time when user performed a billable operation
resettoken	varchar(90)	DEFAULT null	Token value to be used in the API call described at Section 3.3.15, “Reset user password” in *OneMediaHub Version 14.5 Server API Developer's Guide*
resettokenexpiretime	datetime		Expiration date of the `resettoken` field
last_update	bigint(20)	DEFAULT null	The last time the user's data has been changed

E.1.56 Other Liferay tables

The following table is not directly accessed by the OneMediaHub, but was originally part of the Liferay 4.2 Framework. It is not involved in any logic in the product, but is still needed to have the OneMediaHub working. It will be removed in future releases.

Other Liferay tables	
Company	Information about the company associated to all the users (e.g. Funambol)

E.2 OneMediaHub User

The *User* database is described at Chapter 6, *Database partitioning*.

E.2.1 fnbl_client_mapping

`fnbl_client_mapping` contains the item mapping based on the link between principal ID, sync source, LUID and GUID.

fnbl_client_mapping			
Column	**Type**	**Constraints**	**Description**
principal	bigint	PK, NOT NULL	Principal ID
sync_source	varchar(16)	PK, NOT NULL	Source URI
luid	varchar(200)	PK, NOT NULL	LUID
guid	varchar(200)	PK, NOT NULL	GUID

Column	Type	Constraints	Description
last_anchor	varchar(20)		Anchor set in the last synchronization

E.2.2 fnbl_comment

`fnbl_comment` represents the comments and notes that administrator and support might add about a user and the issues she reported.

fnbl_comment			
Column	**Type**	**Constraints**	**Description**
id	bigint(20)	PK, NOT NULL	The unique ID of the comment
userid	varchar(255)	NOT NULL	The user ID of the user to whom the comment refers
creation_date	bigint(20)	NOT NULL	Creation time in UTC milliseconds
comment	text	NOT NULL	The comment
author	varchar(255)	NOT NULL	The user ID of the author of the comment

E.2.3 fnbl_device_config

`fnbl_device_config` contains the configuration settings related to a device.

fnbl_device_config			
Column	**Type**	**Constraints**	**Description**
principal	bigint	NOT NULL	Principal ID
uri	varchar(128)	NOT NULL	Configuration URI
value	varchar(255)	NOT NULL	Configuration value
last_update	bigint	NOT NULL	Last time configuration's update
status	char(1)	NOT NULL	Configuration item status

E.2.4 fnbl_email_folder

`fnbl_email_folder` is no longer used.

fnbl_email_folder			
Column	**Type**	**Constraints**	**Description**
guid	varchar(50)	PK, NOT NULL	
source_uri	varchar(128)	PK, NOT NULL	
principal	bigint	PK, NOT NULL	
parentid	varchar(50)		

Column	Type	Constraints	Description
path	varchar(500)		

E.2.5 fnbl_email_inbox

`fnbl_email_inbox` is no longer used.

fnbl_email_inbox			
Column	**Type**	**Constraints**	**Description**
guid	varchar(50)	PK, NOT NULL	
username	varchar(50)	PK, NOT NULL	
protocol	varchar(4)	PK, NOT NULL	
last_crc	bigint		
invalid	char(1)		
internal	char(1)		
messageid	varchar(700)		
headerdate	varchar(20)		
received	varchar(20)		
subject	varchar(700)		
sender	varchar(300)		
token	varchar(200)		
status	char(1)		

E.2.6 fnbl_email_sentpop

`fnbl_email_sentpop` is no longer used.

fnbl_email_sentpop			
Column	**Type**	**Constraints**	**Description**
id	varchar(200)	PK, NOT NULL	
source_uri	varchar(128)	PK, NOT NULL	
principal	bigint	PK, NOT NULL	
messageid	varchar(700)		
mail	mediumblob		

E.2.7 fnbl_exported_file_data_object

`fnbl_exported_file_data_object` contains information about which pictures, videos, and files have been exported to the external services (Picasa, Facebook, Flickr, YouTube)

fnbl_exported_file_data_object			
Column	**Type**	**Constraints**	**Description**
id	bigint(20)	Not Null, PK	Incremental ID
account_id	bigint(20)		Service account ID

Column	Type	Constraints	Description
service_name	varchar(255)	Not Null	Service code, for example flikr or picasa
file_data_object	bigint(20)	Not Null, FK (fnbl_file_data_object_property)	ID of the media file
userid	varchar(255)		The username of the owner of the media item
export_time	bigint(20)		When the media item has been exported
external_id	varchar(255)		External ID of the media item

E.2.8 fnbl_file_data_object

fnbl_file_data_object contains the metadata information of the media files stored on the file-system, like pictures, videos, and files.

fnbl_file_data_object			
Column	**Type**	**Constraints**	**Description**
id	bigint(20)	Not Null, PK	The file data object GUID
userid	varchar(255)		The user ID to whom the media files belong
last_update	bigint(20)		The last time when the media file was updated
status	char(1)		The item status: • D - deleted item; • N - new item (added and never updated); • U - updated item.
content_status	char(1)		The content status of the media files: • N - item for which the server has only metadata (no binary); • P - item partially uploaded (not completed, so not available on the server); • U - item uploaded, it is completed on the server (marked as

Column	Type	Constraints	Description
			N or U in the status column). The entries with status N or P are maintained in the server for 24 hours; after that they will be deleted.
local_name	varchar(255)		The name of the file used on the server file system repository
etag	varchar(32)		The etag value to identify binary changes
true_name	varchar(255)		Name of the file (the original name on the client)
created	datetime		The date and time when the file was created
modified	datetime		The date and time when the body of the file object was last changed.
accessed	datetime		The date and time when the body of the file object was last accessed
cttype	varchar(255)		The content type of the file as defined by RFC 2045
object_size	bigint(20)		The size of the file object's body
size_on_storage	bigint(20)		The actual size of the file on the storage system
deleted_owner	varchar(255)		Username of the deleted user, if the owner of this item has been deleted and they binary items are marked for deletion. Otherwise null
favorite	tinyint(4)		If the picture, video, or file is a favorite: • 0 – not favorite • 1 – favorite
latitude	decimal(9,6)		Latitude of a location associated with the picture, video, or file
longitude	decimal(9,6)		Longitude of a location associated with the picture, video, or file

Column	Type	Constraints	Description
modified_by_device	varchar(128)		The ID of the last device that modified the file data object
media_type	varchar(255)		The media type of the item. It can contain one of the following values: • `file` • `picture` • `video` • `audio`
uploaded_on_node	varchar(10)		The node ID where the binary content was uploaded, if more than one instance of the server are running
folder_id	bigint	FK (fnbl_folder)	The ID of the folder the media item belongs to
transcoding_status	char(1)		The status of the transcoding job: • `Q` *in queue*: the transcoding job has been put in the queue of transcoding jobs • `P` *in progress*: the transcoding job has been created • `T` *transcoded*: the transcoding job has been successfully completed • `E` *error*: the transcoding job has been completed with error
transcoded_size	bigint		The size of the transcoded file
soft_deleted	boolean		The soft deleted status
uploaded	bigint(20)		The time when the media was completely uploaded

E.2.9 fnbl_file_data_object_label_items

fnbl_file_data_object_label_items

Column	Type	Constraints	Description
id	bigint	PK, FK(`fnbl_label`)	The unique ID of the label
fdo_id	bigint	PK, FK(`fnbl_file_data_object`)	The unique ID of the media items

E.2.10 fnbl_file_data_object_property

`fnbl_file_data_object_property` allows to store optional information for pictures, videos, and files such as Exif data or rotation information.

fnbl_file_data_object_property			
Column	**Type**	**Constraints**	**Description**
id	bigint(20)	NOT NULL, PK	Incremental ID
fdo_id	bigint(20)	NOT NULL, FK (fnbl_file_data_object)	ID of the media file
name	varchar(255)		The name of the property to be stored (`exif`, `rotation`, ...)
value	text		The value of the property

E.2.11 fnbl_file_data_object_set

`fnbl_file_data_object_set` allows to store the information about a set of media items.

fnbl_file_data_object_set			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK, NOT NULL	The ID of the set
userid	varchar(255)	PK, NOT NULL	The owner of the set
type	varchar(255)	PK, NOT NULL	The type of the set
description	varchar(255)		A description of the set
access_counter	int		Number of accesses done to the set after latest reset
created	bigint		Creation time
accessed	bigint		Access time
service_name	varchar(255)		The name of the service

E.2.12 fnbl_file_data_object_set_item

`fnbl_file_data_object_set_item` allows to store the media items contained in a set.

fnbl_file_data_object_set_item			
Column	**Type**	**Constraints**	**Description**
fdo_id	bigint	PK, NOT NULL	The ID of the item
fdo_set_id	bigint	PK, NOT NULL	The ID of the set

E.2.13 fnbl_file_data_object_tag

`fnbl_file_data_object_tag` includes information about tags for file data objects.

fnbl_file_data_object_tag			
Column	**Type**	**Constraints**	**Description**
fdo_id	bigint	PK	The ID of the file data object to which the tag belongs
tag	varchar(255)	PK	The value of the tag

E.2.14 fnbl_file_data_object_thumbnail

`fnbl_file_data_object_thumbnail` includes information about the thumbnails generated for pictures and videos.

fnbl_file_data_object_thumbnail			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	The unique ID of the thumbnail
fdo_id	bigint	FK (fnbl_file_data_object)	The unique ID of the file data object
name	varchar(255)		The name of the generated thumbnail
width	integer		The width of the thumbnail
height	integer		The height of the thumbnail
size	bigint		The size in bytes of the thumbnail

E.2.15 fnbl_folder

`fnbl_folder` is used to store the persistent media folder structure.

fnbl_folder			
Column	**Type**	**Constraints**	**Description**
id	bigint	Not Null, PK	The unique ID of the folder
userid	varchar(255)		The user ID to whom the folder belongs
last_update	bigint(20)		The last time when the folder was updated
status	char(1)		The item status
name	varchar(255)		The name of the folder
types	smallint		The media types of the folder (one from `0` to `15`)

Column	Type	Constraints	Description
magic	char(1)		True if the folder is the unique magic folder
device_name	varchar(255)		The name of the device that generated the folder
parent_id	bigint	FK (fnbl_folder)	The folder ID the folder belongs to

E.2.16 fnbl_label

fnbl_label			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	The unique ID of the label
name	varchar(255)		The value of the label
userid	varchar(255)		The owner of the label
label_type	varchar(255)		The type of the label

E.2.17 fnbl_last_activity

`fnbl_last_activity` contains information about the last sync activity done by a device.

fnbl_last_activity			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	Unique identifier of the activity
userId	varchar(255)	FK (User_)	The ID of the user
deviceid	varchar(128)	NOT NULL	The ID of the device reporting the activity
status	varchar(16)		The status of the sync
starttime	bigint		The time of when the sync started
endtime	bigint		The time of when the sync ended

E.2.18 fnbl_last_activity_item

`fnbl_last_activity_item` contains each record of last activities performed by devices.

fnbl_last_activity_item			
Column	**Type**	**Constraints**	**Description**
source	varchar(255)	PK	Source of the sync (`card`, `cal`, etc)
activitytype	varchar(64)	PK	Type of activity (*add*, *remove*, etc)
activity	bigint	PK	The ID of the activity this row refers to

Column	Type	Constraints	Description
sent	integer		Number of items sent by the device
received	integer		Number of items received by the device

E.2.19 fnbl_pending_notification

`fnbl_pending_notification` contains the pending notifications to the devices

fnbl_pending_notification			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK, NOT NULL	Unique ID for the notification
username	varchar(255)	NOT NULL	The username of the user
device	varchar(128)	NOT NULL	The ID of the device that will be notified
sync_source	varchar(16)	NOT NULL	The sync source for which the device will be notified
content_type	varchar(128)	NOT NULL	The content type
sync_type	integer	NOT NULL	The type of the synchronization
ui_mode	integer	NOT NULL	The UI mode
time	bigint	NOT NULL	The time when the notification was recorded

E.2.20 fnbl_pim_address

`fnbl_pim_address` contains information about address home, business, and other.

fnbl_pim_address			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	Unique ID
userid	varchar(255)		ID of the user the address belongs to
contact	bigint	FK(fnbl_pim_contact)	Contact ID
type	smallint		Address type 1 – Home 2 – Business 3 – Other
street	varchar(128)		Street
city	varchar(64)		City
state	varchar(64)		State

Column	Type	Constraints	Description
postal_code	varchar(16)		Postal code
country	varchar(32)		Country
po_box	varchar(16)		Post office box
preferred	smallint		• 0 – item is not preferred • 1 – item is preferred

E.2.21 fnbl_pim_calendar

fnbl_pim_calendar contains information about a calendar event or task.

fnbl_pim_calendar			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	Calendar ID
userid	varchar(255)		User ID
last_update	bigint		Last updating time
status	char		Calendar status N – New U – Updated D – Deleted
type	smallint		Calendar's type 1 – Event 2 – Task
all_day	char(1)		Is the calendar an all-day?
body	varchar(255)		Detailed description
busy_status	smallint		Availability of the user during the calendar
categories	varchar(255)		Categories the calendar belongs to
companies	varchar(255)		Companies related to the calendar
duration	integer		Calendar's duration
dstart	timestamp		Starting date of the calendar
dend	timestamp		Ending date of the calendar
folder	varchar(255)		The folder in which the calendar is saved
importance	smallint		Priority level

Column	Type	Constraints	Description
location	varchar(255)		Location
meeting_status	smallint		Point reached by the calendar's organization process 0 – no meeting 1 – meeting 3 – received 5 – canceled
mileage	varchar(16)		Mileage
reminder_time	timestamp		Date and Time of when the calendar's reminder has to be triggered
reminder	char(1)		Is there a reminder for the calendar ?
reminder_sound_file	varchar(255)		Sound file to be played when the calendar's reminder gets active
reminder_options	integer		Optional features
reminder_repeat_count	integer		Number of times the reminder action has to be repeated
sensitivity	smallint		The type of access class
subject	varchar(1000)		Subject
rec_type	smallint		Type of recurrence rule
rec_interval	integer		Recurrence interval
rec_month_of_year	smallint		Month of the year when the calendar has to be repeated
rec_day_of_month	smallint		Day of month when the calendar has to be repeated
rec_day_of_week_mask	varchar(16)		Day(s) of the week when the calendar has to be repeated
rec_instance	smallint		Instance of the days prescribed by the recurrence period and by the modifiers
rec_start_date_pattern	varchar(32)		Starting date of the recurrence
rec_no_end_date	char(1)		Does the recurrence have the end date?

Column	**Type**	**Constraints**	**Description**
rec_end_date_pattern	varchar(32)		Ending date of the recurrence
rec_occurrences	smallint		Number of time for which repeat the calendar
reply_time	timestamp		Date and Time when the recipient replied to the meeting request associated with the calendar
completed	timestamp		Date and Time when the Task has been completed
percent_complete	smallint		Task's completion percentage
dstart_tz	varchar(255)		Timezone of the start date
dend_tz	varchar(255)		Timezone of the end date
reminder_tz	varchar(255)		Timezone of the reminder date
latitude	decimal(9,6)		Latitude of the location associated with the calendar event
longitude	decimal(9,6)		Longitude of the location associated with the calendar event
account_type	varchar(64)		ID that can identify the type of account (currently not used by the OneMediaHub client Apps)
account_name	varchar(64)		Name of the account in the device (currently not used by the OneMediaHub client Apps)
tzid	varchar(255)		Timezone ID for this event
uid	varchar(64)		A unique identifier

E.2.22 fnbl_pim_calendar_alarm

`fnbl_pim_calendar_alarm` includes information about alarms. Multiple alarms can be associated to a single event.

fnbl_pim_calendar_alarm			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	The ID of the reminder

Column	Type	Constraints	Description
userid	varchar(255)		The user this reminder belongs to
calendar	bigint		The ID of the calendar this reminder belongs to
time	datetime		Date and time of when the calendar's reminder has to be triggered
timezone	varchar(255)		Timezone of the reminder date
active	char(1)		Is the reminder active?
sound_file	varchar(255)		Sound file to be played when the reminder gets active
repeat_count	integer		Number of times the reminder action has to be repeated
options	integer		Optional features

E.2.23 fnbl_pim_calendar_attendee

`fnbl_pim_calendar_attendee` includes information about attendees. Multiple attendees can be associated with a single event.

fnbl_pim_calendar_attendee			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	The ID of the attendee
calendar	bigint	PK	The ID of the calendar event this attendee belongs to
userid	varchar(255)		The user this attendee belongs to
cn	varchar(128)		Common or displayable name associated with the attendee
field_value	varchar(128)		The actual value of the `ATTENDEE` property from the vCalendar object, e.g. (if the value is specified as a URL reference to a vCard object that contains the information about the attendee) `http://www.xyz.com/~myvcard.vcf`
value_type	varchar(16)		The content of the `VALUE` parameter of the

Column	Type	Constraints	Description
			ATTENDEE property from the vCalendar object, e.g. URL
value_format	varchar(16)		The content of the TYPE parameter of the ATTENDEE property from the vCalendar object, e.g. VCARD
role	smallint		Role the attendee will have: • 0 – attendee • 1 – delegate • 2 – organizer • 3 – owner • 4 – optional participant • 5 – non participant
rsvp	smallint		Favor of reply is requested: • 0 – no • 1 - yes
partstatus	smallint		Status of the attendee's participation: • 0 – declined • 1 – needs action • 2 – sent • 3 – delegated • 4 – tentative • 5 – accepted • 6 – in process • 7 - completed
expect	smallint		Expectation of the attendee's participation by the originator: • 0 – non participant

Column	Type	Constraints	Description
			- 1 – optional - 2 – required - 3 – required immediately - 4 - chairman
cutype	smallint		Type of attendee: - 0 - individual - 1 - group - 2 - resource - 3 - room

E.2.24 fnbl_pim_calendar_exception

`fnbl_pim_calendar_exception` contains information about the calendar exceptions.

fnbl_pim_calendar_exception			
Column	**Type**	**Constraints**	**Description**
calendar	bigint	PK, FK(fnbl_pim_calendar)	Calendar ID
addition	char(1)	PK	Addition or Subtraction of the exception
occurrence_date	timestamp	PK	Date and Time of the exception

E.2.25 fnbl_pim_contact

`fnbl_pim_contact` contains information about the contact.

fnbl_pim_contact			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	Contact ID
userid	varchar(255)		User ID
last_update	bigint		Last updating time
status	char		Contact status N – New U – Updated D – Deleted
importance	smallint		Priority
sensitivity	smallint		The type of access class

Column	Type	Constraints	Description
subject	varchar(255)		Subject
folder	varchar(255)		The folder in which the contact is saved
anniversary	varchar(16)		Anniversary date
first_name	varchar(64)		First name
middle_name	varchar(64)		Middle name
last_name	varchar(64)		Last name
display_name	varchar(128)		Display name
birthday	varchar(16)		Birthday date
body	varchar(255)		Note
categories	varchar(255)		Categories the contact belongs to
children	varchar(255)		Name of the contact's children
hobbies	varchar(255)		List of hobbies
initials	varchar(16)		Initials
languages	varchar(255)		List of languages spoken by contact
nickname	varchar(64)		Nickname
spouse	varchar(128)		Full name of the contact's spouse
suffix	varchar(32)		Suffix name
title	varchar(32)		Salutation (word that precedes the full name)
gender	char(1)		Gender
assistant	varchar(128)		Full name of the contact's assistant
company	varchar(255)		Name of the company in which the contact works
department	varchar(255)		Name of the department in which the contact works
job_title	varchar(128)		Job title
manager	varchar(128)		Full name of the contact's manager
mileage	varchar(16)		Mileage
office_location	varchar(64)		Location of the contact's office
profession	varchar(64)		Professional role of the contact
companies	varchar(255)		Companies the contact is related to

Column	Type	Constraints	Description
photo_type	smallint		Picture of the contact
uid	varchar(64)		A unique identifier
account_type	varchar(64)		Type of account
account_name	varchar(64)		Name of the account
favorite	smallint		If the contact is a favorite • `0` – not favorite • `1` – favorite
custom_phone	varchar(64)		A phone number
custom_email	varchar(64)		An email address
custom_address	varchar(255)		An address
custom_org	varchar(255)		An organization
custom_im	varchar(255)		A custom im address
revision	varchar(64)		Contact revision

E.2.26 fnbl_pim_contact_item

`fnbl_pim_contact_item` contains information about phone numbers, email addresses, web pages, and address labels.

fnbl_pim_contact_item

Column	Type	Constraints	Description
id	bigint	PK	Unique ID
userid	varchar(255)		ID of the user the contact item belongs to
contact	bigint	FK(fnbl_pim_contact)	Contact ID
type	smallint		Item type 0 – unspecified 1 – home phone number 2 – home fax 3 – mobile 4 – general email 5 – web 1 10 – work phone number 11 – work fax 12 – work main phone number

Column	Type	Constraints	Description
			13 – assistant phone number 14 – pager 15 – callback 16 – home email 17 – web 2 20 – car 21 – primary 23 – work email 30 – other
value	varchar(255)		Item value
preferred	smallint		• `0` – item is not preferred • `1` – item is preferred

E.2.27 fnbl_pim_contact_photo

`fnbl_pim_contact_photo` contains the information about the photo of the contact.

fnbl_pim_contact_photo			
Column	**Type**	**Constraints**	**Description**
contact	bigint	PK, FK(fnbl_pim_contact)	ID of the contact
type	varchar(64)		Is the photo an image in the DB or a URL?
photo	bytea		Bytes of the image
url	varchar(255)		URL of the image

E.2.28 fnbl_pim_note

`fnbl_pim_note` contains information about notes.

fnbl_pim_note			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	ID of the note
userid	varchar(255)		User ID
last_update	bigint		Last time when the note was updated
status	char(1)		Note status

Column	**Type**	**Constraints**	**Description**
			N – New U – Updated D – Deleted
subject	varying		The subject of the note
textdescription	varying		The description of the note
categories	varying		The categories of the note
folder	varying		The folder of the note
color	integer		The color of the note
height	integer		The height of the note
width	integer		The width of the note
top	integer		The top margin of the note
leftmargin	integer		The left margin of the note

E.2.29 fnbl_pim_organization

`fnbl_pim_organization` includes information about the organizations (companies) associated with each contact. Multiple organizations can be associated with a single contact.

fnbl_pim_organization			
Column	**Type**	**Constraints**	**Description**
id	bigint	PK	The ID of the organization
userid	varchar(255)		The user this organization belongs to
contact	bigint	FK(fnbl_pim_contact)	ID of the contact
company	varchar(255)		Name of the company
department	varchar(255)		Name of the department
office_location	varchar(64)		Location of the office
preferred	tinyint		• 0 – not preferred • 1 – preferred

E.2.30 fnbl_temp_paying_users

The table `fnbl_temp_paying_users` is a temporary table used to compute the marketing key performance indicators (KPI).

fnbl_temp_paying_users			
Column	**Type**	**Constraints**	**Description**
userid	varchar(75)	PK	The username

E.3 OneMediaHub Reporting

E.3.1 fnbl_client_download_stats

`fnbl_client_download_stats` stores the number of daily downloads for the desktop clients.

fnbl_client_download_stats			
Column	**Type**	**Constraints**	**Description**
stats_date	date	PK	The date when the reporting record has been generated
num_download_windows	integer		Number of downloads of the Windows PC app
num_download_macos	integer		Number of downloads of the Mac OS app

E.3.2 fnbl_event

`fnbl_event` contains the all the reporting information for the OneMediaHub.

fnbl_event			
Column	**Type**	**Constraints**	**Description**
event_time	bigint	NOT NULL	The date time of the event
event_type	varchar(64)		The event type
logger_name	varchar(255)		The logger name
username	varchar(255)		The user involved in the event
device	varchar(255)		The device involved in the event
sessionid	varchar(255)		The session ID
source	varchar(32)		The sync source URI
message	text		The log message
originator	varchar(64)		The Funambol service used, for example DS-SERVICE or SAPI
sync_type	varchar(64)		The synchronization type
num_transferred_items	integer		The number of transferred items (used in SyncML only)
num_added_items	integer		The number of added items (used in SyncML only)
num_deleted_items	integer		The number of deleted items (used in SyncML only)

Column	Type	Constraints	Description
num_updated_items	integer		The number of updated items (used in SyncML only)
duration	integer		The duration of the SyncML session
status_code	varchar(64)		The HTTP status code
error	char(1)		Possible values either 'N' or 'Y'. Default 'N'

E.3.3 fnbl_marketing_kpi

`fnbl_marketing_kpi` contains the weekly and monthly reports of the marketing key performance indicators (KPI).

fnbl_marketing_kpi			
Column	**Type**	**Constraints**	**Description**
reportDate	datetime	PK	The date when the reporting record has been generated
newUsers	integer		Users registered (and activated) since previous report date
loginUsers	integer		Users who interacted with the server using a client (excluding the Web Portal) since previous report date
mobileUsers	integer		Users who interacted with the server using a mobile device since previous report date
desktopUsers	integer		Users who interacted with the server using a desktop client since previous report date
webUsers	integer		Users who interacted with the server using a web client since previous report date
deletedUsers	integer		Number of deleted users since previous report date
totalMediaUsers	integer		Overall number of users with at least one media file
totalActivatedUsers	integer		Total activated users
totalUsers	integer		Total users

Column	Type	Constraints	Description
contactUsers	integer		Users who added, modified, or deleted at least one contact since previous report date
calendarUsers	integer		Users who added, modified, or deleted at least one event since previous report date
mediaUsers	integer		Users who added, modified, or deleted at least one media item since previous report date
totalGetChanges	integer		Number of requests of the API call described at Section 3.3.1, “Get changes” in *OneMediaHub Version 14.5 Server API Developer's Guide* since previous report date
totalSyncmlSync	integer		Number of `SyncML` syncs since previous report date
windowsDownloads	integer		Number of Windows PC app downloads since previous report date
macosDownloads	integer		Number of Mac OS app downloads since previous report date
avgStorage	bigint		Average storage per media user
totalStorage	bigint		Total storage used by paying users
avgStoragePaying	bigint		Average storage per paying media user
totalStoragePaying	bigint		Total storage used by paying media users
avgStorageNotPaying	bigint		Average storage per not paying media user
totalStorageNotPaying	bigint		Total storage used by not paying media users
totalPayingUsers	integer		Number of paying users
totalNotPayingUsers	integer		Number of not paying users
totalUsersInFamilies	integer		Total number of users that have a family

Column	Type	Constraints	Description
totalUsersWithSharedFamilyItems	integer		Number of users that shared family items since previous report date
period	char(1)	NOT NULL	KPI period, either `W` (weekly) or `M` (monthly)
newSyncUsers	integer		Number of new active users since previous report date
androidUsers	integer		Number of users of Android OS since previous report date
iosUsers	integer		Number of users of iOS OS since previous report date
blackberryUsers	integer		Number of users of Blackberry OS since previous report date
windowsphoneUsers	integer		Number of users of Windows 8 OS since previous report date
windowsdesktopUsers	integer		Number of Windows desktop client users since previous report date
macUsers	integer		Number of MAC desktop client users since previous report date
totalStorageForPicture	bigint		Total used storage for pictures
totalStorageForVideo	bigint		Total used storage for videos
totalStorageForMusic	bigint		Total used storage for music
totalStorageForFile	bigint		Total used storage for documents
totalMediaItemsPaying	integer		Total number (quantity) of stored data items (pics/video/music/docs) by paying users
totalMediaItemsNotPaying	integer		Total number (quantity) of stored data items (pics/video/music/docs) by free users
totalStorageMobileApps	bigint		Total volume [Gb] of uploaded files by mobile apps

Column	Type	Constraints	Description
totalStorageDesktopClients	bigint		Total volume [Gb] of uploaded files by desktop clients
totalStorageWeb	bigint		Total volume [Gb] of uploaded files by web clients
totalSharedItems	bigint		Total number of items successfully shared
totalSharedItemsForMobileApps	integer		Total number of shared items from mobile app
totalSharedItemsForWeb	integer		Total number of shared items from the web portal
totalUsersUsingShare	integer		Total number of unique users sharing items
totalSharedItemsFacebook	integer		Total number of items uploaded to Facebook
totalSharedItemsFlickr	integer		Total number of items uploaded to Filckr
totalSharedItemsMail	integer		Total number of items sent by email
totalSharedItemsPicasa	integer		Total number of items uploaded to Picasa
totalSharedItemsTwitter	integer		Total number of items uploaded to Twitter
totalSharedItemsYoutube	integer		Total number of items uploaded to Youtube

Appendix F. Examples of sent SNMP traps

These are examples of sent traps received by `snmptrapd`.

Command line

```
[root@localhost ~]# snmptrapd -m /usr/share/snmp/mibs/SNMPv2-
MIB.txt:/usr/share/snmp/mibs/FUNAMBOL-LOGGING-MIB.txt -P -n -F"\n\n
%02.2h:%02.2j TRAP%w.%q from %A (%b [%B])\ntrap type: %w\ncommunity:
%P\n%V\n%v" udp:162
```

Output

```
Warning: -P option is deprecated; use -f -Le instead
2007-02-18 11:26:22 NET-SNMP version 5.2.1.2 Started.

11:26 TRAP0.0 from 0.0.0.0 (UDP: [192.168.10.20]:1268
 [192.168.10.20])
trap type: 0
community: TRAP2, SNMP v2c, community public
SNMPv2-MIB::snmpTrapOID.0 = OID: FUNAMBOL-LOGGING-
MIB::funambolLoggingNotification
FUNAMBOL-LOGGING-MIB::funambolLoggingDateAndTime = STRING:
 2007-2-18,11:24:46.4,+1:0
FUNAMBOL-LOGGING-MIB::funambolLoggingLevel = INTEGER: info(3)
FUNAMBOL-LOGGING-MIB::funambolLoggingName = STRING:
 funambol.transport.http
FUNAMBOL-LOGGING-MIB::funambolLoggingSessionId = STRING:
 1E39E498FC3B602DACF6ACE203E8D6B4
FUNAMBOL-LOGGING-MIB::funambolLoggingDeviceId = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingUser = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingSourceUri = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingMessage = STRING: Handling
 incoming request

11:26 TRAP0.0 from 0.0.0.0 (UDP: [192.168.0.20]:1268 [192.168.0.20])
trap type: 0
community: TRAP2, SNMP v2c, community public
SNMPv2-MIB::snmpTrapOID.0 = OID: FUNAMBOL-LOGGING-
MIB::funambolLoggingNotification
FUNAMBOL-LOGGING-MIB::funambolLoggingDateAndTime = STRING:
 2007-2-18,11:24:46.5,+1:0
FUNAMBOL-LOGGING-MIB::funambolLoggingLevel = INTEGER: info(3)
FUNAMBOL-LOGGING-MIB::funambolLoggingName = STRING:
 funambol.transport.http
FUNAMBOL-LOGGING-MIB::funambolLoggingSessionId = STRING:
 1E39E498FC3B602DACF6ACE203E8D6B4
FUNAMBOL-LOGGING-MIB::funambolLoggingDeviceId = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingUser = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingSourceUri = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingMessage = STRING: Request URL:
 http://localhost:8080/funambol/ds

11:26 TRAP0.0 from 0.0.0.0 (UDP: [192.168.0.20]:1268 [192.168.0.20])
```

```
trap type: 0
community: TRAP2, SNMP v2c, community public
SNMPv2-MIB::snmpTrapOID.0 = OID: FUNAMBOL-LOGGING-
MIB::funambolLoggingNotification
FUNAMBOL-LOGGING-MIB::funambolLoggingDateAndTime = STRING:
 2007-2-18,11:24:46.6,+1:0
FUNAMBOL-LOGGING-MIB::funambolLoggingLevel = INTEGER: info(3)
FUNAMBOL-LOGGING-MIB::funambolLoggingName = STRING:
 funambol.transport.http
FUNAMBOL-LOGGING-MIB::funambolLoggingSessionId = STRING:
 1E39E498FC3B602DACF6ACE203E8D6B4
FUNAMBOL-LOGGING-MIB::funambolLoggingDeviceId = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingUser = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingSourceUri = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingMessage = STRING: Requested
 sessionId: null

17:53 TRAP0.0 from 0.0.0.0 (UDP: [192.168.0.20]: 1268 [UDP:
 [192.168.0.20]: 1268])
trap type: 0
community: TRAP2, SNMP v2c, community public
SNMPv2-MIB::snmpTrapOID.0 = OID: FUNAMBOL-LOGGING-
MIB::funambolLoggingNotification
FUNAMBOL-LOGGING-MIB::funambolLoggingDateAndTime = STRING:
 2009-12-14,10:52:1.6,+0:0
FUNAMBOL-LOGGING-MIB::funambolLoggingLevel = INTEGER: fatal(0)
FUNAMBOL-LOGGING-MIB::funambolLoggingName = STRING:
 funambol.configuration
FUNAMBOL-LOGGING-MIB::funambolLoggingSessionId = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingDeviceId = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingUser = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingSourceUri = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingMessage = STRING: Unknown fatal
 error
com.funambol.framework.tools.beans.BeanInstantiationException: Error
 creating bean
        at com.funambol.framework.tools.beans.BeanFactory.unmarshal(
BeanFactory.java:389)
        at com.funambol.framework.tools.beans.BeanFactory.unmarshal(
BeanFactory.java:415)
        at
 com.funambol.framework.tools.beans.BeanFactory.getBeanInstanceFromCo
nfig(
BeanFactory.java:201)

17:53 TRAP0.0 from 0.0.0.0 (UDP: [192.168.0.20]: 1268 [UDP:
 [192.168.0.20]: 1268])
trap type: 0
community: TRAP2, SNMP v2c, community public
SNMPv2-MIB::snmpTrapOID.0 = OID: FUNAMBOL-LOGGING-
MIB::funambolLoggingNotification
FUNAMBOL-LOGGING-MIB::funambolLoggingDateAndTime = STRING:
 2009-12-14,10:52:1.6,+0:0
FUNAMBOL-LOGGING-MIB::funambolLoggingLevel = INTEGER: fatal(0)
```

```
FUNAMBOL-LOGGING-MIB::funambolLoggingName = STRING:
 funambol.configuration
FUNAMBOL-LOGGING-MIB::funambolLoggingSessionId = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingDeviceId = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingUser = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingSourceUri = STRING:
FUNAMBOL-LOGGING-MIB::funambolLoggingMessage = STRING: Unknown fatal
 error
com.funambol.framework.config.ConfigurationException: Error creating
 the ServerConfiguration object
 at com.funambol.server.config.Configuration.getServerConfig(
Configuration.java:363)
 at com.funambol.server.config.Configuration.getUserManager(
Configuration.java:476)
 at com.funambol.server.admin.ws.axis.AdminAuthHandler.<init>(
AdminAuthHandler.java:83)
```

Appendix G. Xuggle Xuggler FAQs

Frequently Asked Questions

Q: Is Xuggler strictly necessary to use OneMediaHub?

A: Yes, since Xuggler permits to have more information about videos and audios, like duration and thumbnails, or the ID3 metadata.

Q: How to install Xuggler?

A: In order to install Xuggler you need to compile it from the source code. There are some prerequirements to be fullfilled in order to be able to build Xuggler; in particular, you need to have installed on your environment:

- Java Platform (JDK) 6 (or higher)
- Apache Ant 1.7 (or higher)
- Perl 5.6 (or higher)
- gcc/g++ 3.2 (or higher)
- make 3.81 (or higher)
- yasm 1.0 (or higher)
- patch 2.6 (or higher)
- pkg-config 0.26 (or higher)

If your environment has the applications listed above, perform the following steps to build Xuggler using the same user that runs OneMediaHub:

1. download the archive containing the source code from `https://github.com/artclarke/xuggle-xuggler/archive/master.zip`:

   ```
   wget 'https://github.com/artclarke/xuggle-xuggler/archive/master.zip' -O master.zip --no-check-certificate
   ```

2. unzip the file:

   ```
   unzip master.zip -d /tmp
   ```

3. change directory:

   ```
   cd /tmp/xuggle-xuggler-master/
   ```

4. run:

   ```
   <ANT_HOME>/bin/ant stage
   ```

5. copy the Xuggler JAR file:

   ```
   cp dist/lib/xuggle-xuggler.jar <root directory of your OneMediaHub installation>/tools/tomcat/lib
   ```

Q: I already installed Xuggler version 3.4, how to upgrade it?

A: Follow the previous steps for building the new version, and then unset `XUGGLE_HOME`, unset `LD_LIBARY_PATH`, and remove `$XUGGLE_HOME/bin` from the `PATH` variable.

Moreover, if you are using OneMediaHub older than v13 you have to remove the filr `xuggler-3.4.1012.jar` from its directory running:

```
rm <root directory of your OneMediaHub installation>/tools/tomcat/
lib/xuggler-3.4.1012.jar
```

```
rm <root directory of your OneMediaHub installation>/ds-server/
default/lib/xuggler-3.4.1012.jar
```

Q: I have compiled Xuggler on my testing server. Can I copy the same JAR file to the production environment?

A: No, you can't. `xuggle-xuggler.jar` contains some native libraries, so you can use it only if your production environment is equal (same operating system and same architecture –32 vs 64 bit–) to your testing server.

Q: What are the machine requisites to use Xuggler?

A: In order to use the Xuggler JAR file, you need an a environment with `libc6` installed. Also make sure that `XUGGLER_HOME` is not set to the path of any previous JAR file version (previous Xuggler versions should not be present on the classpath.)

Q: I have installed all the needed packages, but `ant stage` fails. What can I do?

A: This can happen if you have run `ant stage` with some missing packages (like `gcc` or `gcc-c++`.) After having installed them, before running `ant stage` again you need to clean up the Xuggler's `src` directory by invoking `ant clobber`. After that, you can run `ant stage` again.

Q: How to retrieve some information about the installed Xuggle Xuggler?

A: In order to retrieve which formats and codecs are supported by Xuggle Xuggler, the script `<root directory of your OneMediaHub installation>/bin/gather-xuggler-info` can be run. The information is written to the console.

This is an example of what you should see running the script:

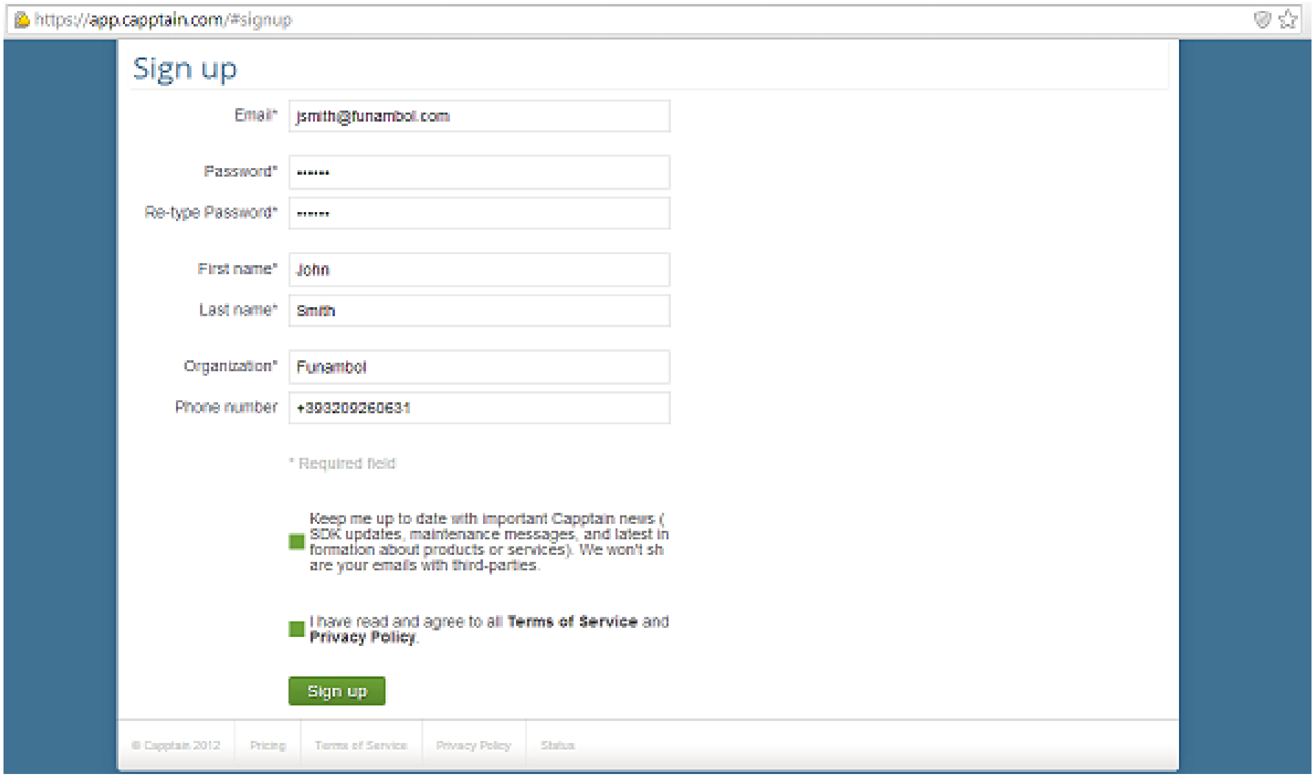
```
=======================================
  Demuxable Formats
=======================================
  "mp3": MPEG audio layer 2/3
  "swf": Flash format
  "mov,mp4,m4a,3gp,3g2,mj2": QuickTime/MPEG-4/Motion JPEG 2000
 format
  "rm": RealMedia format
  ...
=======================================
  Muxable Formats
=======================================
  "mp3": MPEG audio layer 3
  "mov": MOV format
  "m4v": raw MPEG-4 video format
  "mjpeg": raw MJPEG video
  ...
========================================
  Decodeable Codecs
========================================
CODEC_TYPE_VIDEO CODEC_ID_VP6 (vp6): On2 VP6
CODEC_TYPE_VIDEO CODEC_ID_TXD (txd): Renderware TXD (TeXture
 Dictionary) image
CODEC_TYPE_AUDIO CODEC_ID_MP3ON4 (mp3on4): MP3onMP4
CODEC_TYPE_SUBTITLE CODEC_ID_DVB_SUBTITLE (dvbsub): DVB subtitles
...
========================================
  Encodeable Codecs
========================================
CODEC_TYPE_AUDIO CODEC_ID_PCM_MULAW (pcm_mulaw): PCM mu-law
CODEC_TYPE_VIDEO CODEC_ID_DNXHD (dnxhd): VC3/DNxHD
CODEC_TYPE_VIDEO CODEC_ID_QTRLE (qtrle): QuickTime Animation (RLE)
 video
CODEC_TYPE_SUBTITLE CODEC_ID_DVD_SUBTITLE (dvdsub): DVD subtitles
...
========================================
  com.xuggle.xuggler.IContainer Properties
========================================
  probesize; default= 5000000; type=PROPERTY_INT;
    help for probesize: set probing size
  muxrate; default= 0; type=PROPERTY_INT;
    help for muxrate: set mux rate
...
========================================
  com.xuggle.xuggler.IStreamCoder Properties
========================================
  b; default= 64000; type=PROPERTY_INT;
    help for b: set bitrate (in bits/s)
  ab; default= 64000; type=PROPERTY_INT;
    help for ab: set bitrate (in bits/s)
...
========================================
  com.xuggle.xuggler.IVideoResampler Properties
========================================
  sws_flags; default= 2684354592; valid values=(-fast_bilinear; );
type=PROPERTY_FLAGS;
    help for sws_flags: scaler/cpu flags
...
```

Appendix H. Capptain integration on Android App

Step 1 Capptain Sign up

If you haven't signed to Capptain yet, navigate to http://www.capptain.com → Sign Up and fill the form required.

Figure H.1. Capptain - Sign up



https://app.capptain.com/#signup

Sign up

Email*	jsmith@funambol.com
Password*	••••••
Re-type Password*	••••••
First name*	John
Last name*	Smith
Organization*	Funambol
Phone number	+393209260631

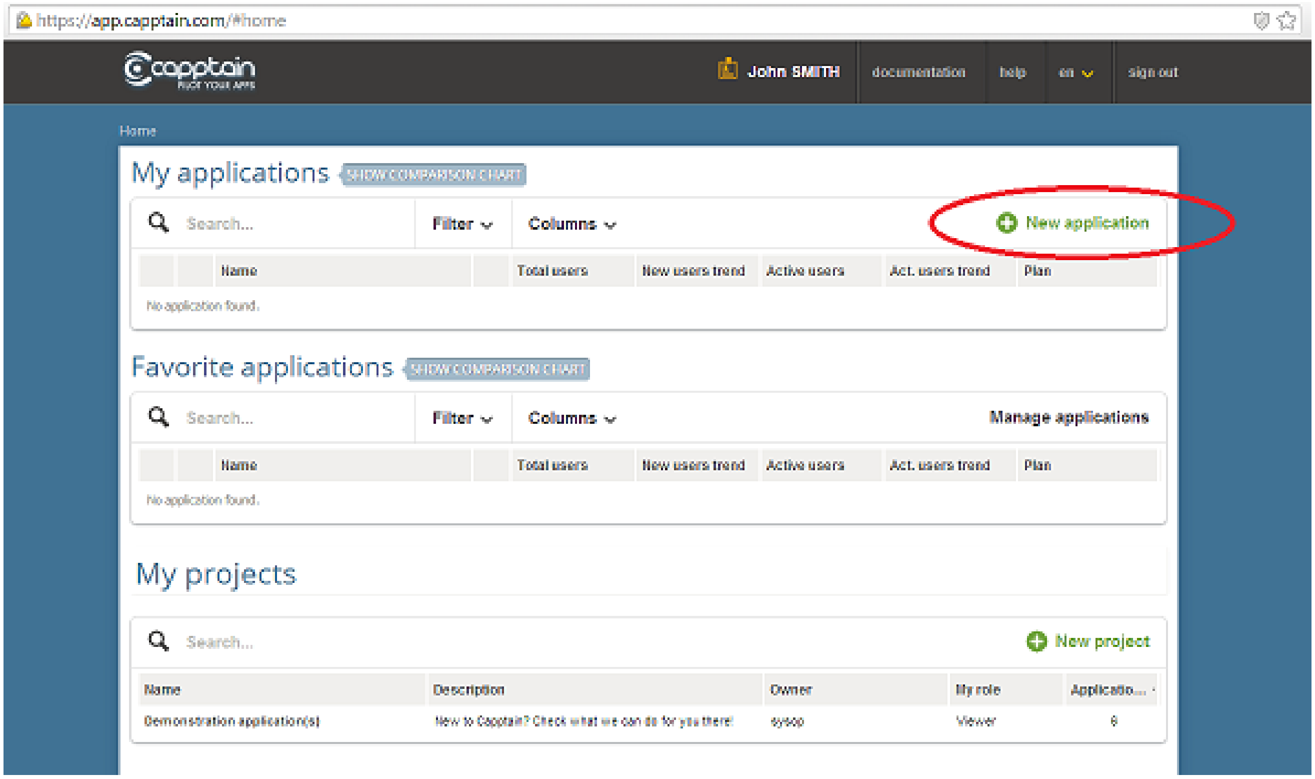
* Required field

☑ Keep me up to date with important Capptain news (SDK updates, maintenance messages, and latest in formation about products or services). We won't sh are your emails with third-parties.

☑ I have read and agree to all **Terms of Service** and **Privacy Policy**.

Then an email with the activation link is sent, press that link and login in the portal. Now should create a new application monitored by Capptain: hit “New application” and choose Android.

Figure H.2. Capptain - "New Application"



My applications

		Name		Total users	New users trend	Active users	Act. users trend	Plan

No application found.

Favorite applications

		Name		Total users	New users trend	Active users	Act. users trend	Plan

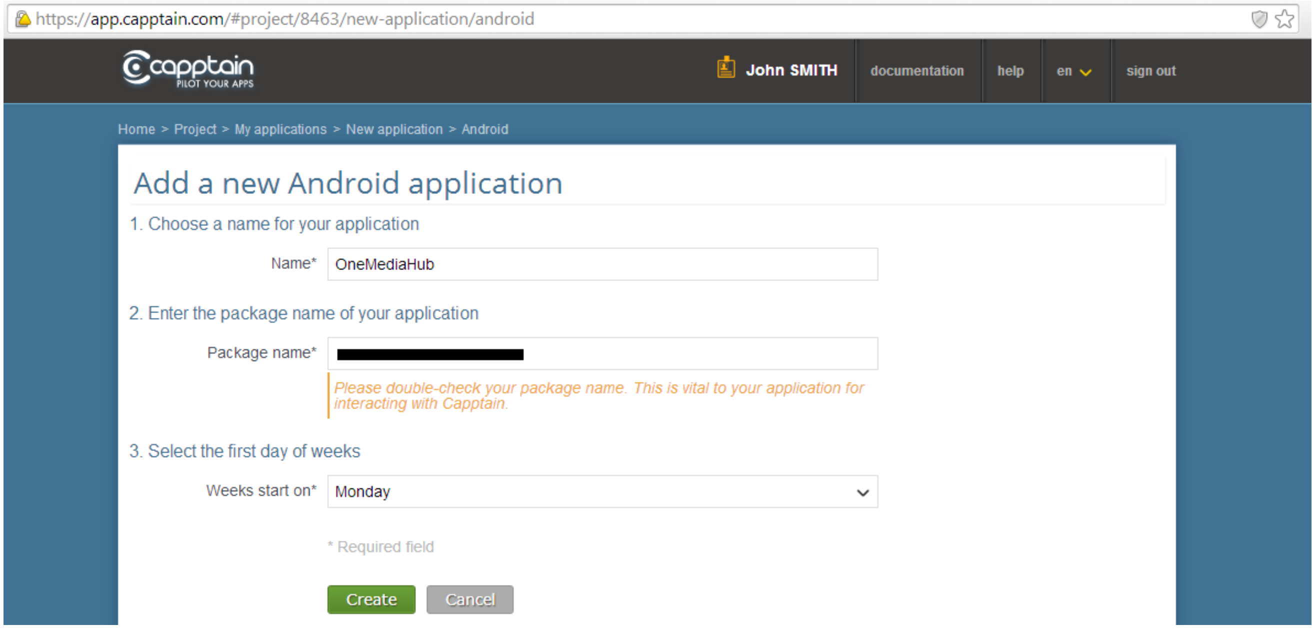
No application found.

My projects

Name	Description	Owner	My role	Applicatio...
Demonstration application(s)	New to Capptain? Check what we can do for you there!	sysop	Viewer	6

Fill the field required with application name and package name and hit “Create”.

Figure H.3. Capptain - "Create"


https://app.capptain.com/#project/8463/new-application/android
capptain
PILOT YOUR APPS
John SMITH
documentation
help
en
sign out
Home > Project > My applications > New application > Android
Create
Cancel

Add a new Android application

1. Choose a name for your application

Name* OneMediaHub

2. Enter the package name of your application

Package name* [redacted]

Please double-check your package name. This is vital to your application for interacting with Capptain.

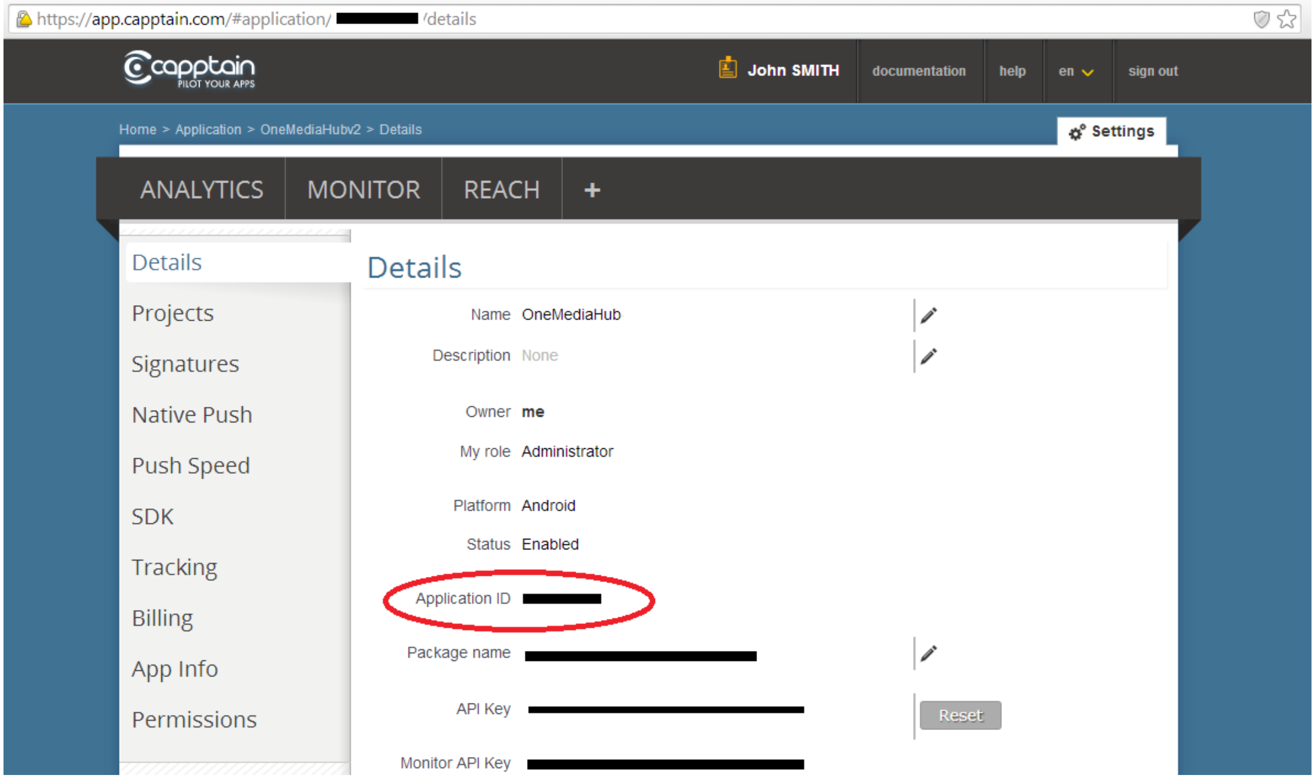
3. Select the first day of weeks

Weeks start on* Monday

* Required field

Select a plan and subscribe accordingly to the user amount. The application is now enabled and Capptain are ready to process its logs.

Figure H.4. Capptain - Application Enabled



https://app.capptain.com/#application/[redacted]/details

Details

Name OneMediaHub

Description None

Owner **me**

My role Administrator

Platform Android

Status Enabled

Application ID [redacted]

Package name [redacted]

API Key [redacted]

Monitor API Key [redacted]

Now a dashboard with detailed information should be shown.

The **ApplicationId** generated it's fondamental to bind the Capptain service and should be provided to Funambol for the Android application branding.

Step 2 Integrate GCM with Capptain

If not already done for other services, you must enable the GCM Service on your Google account used for publish the app in Play Store to use the Capptain Reach notification feature.

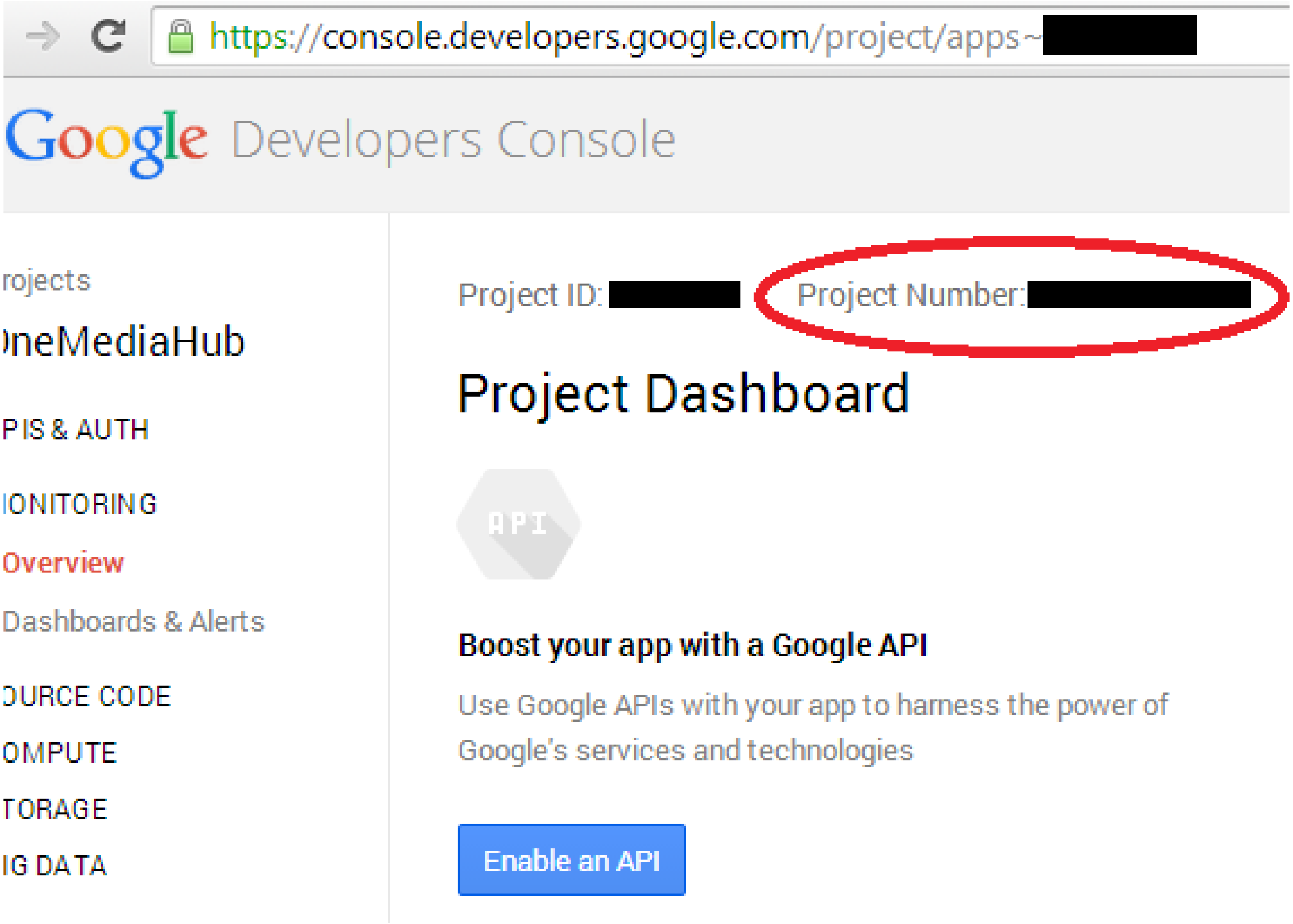
Open the Google Developers Console: https://cloud.google.com/console.

If you haven't created an API project yet, click Create Project. Supply a project name and click Create.

Once the project has been created, a page appears that displays your project ID and project number. For example, **Project Number**: 670330094152.

The **Project Number** (attention not the Project ID, that information it's relevant only for Google) should be provided to Funambol for the Android application branding.

Figure H.5. Capptain - Google Developers Console



https://console.developers.google.com/project/apps~[redacted]

Project ID: [redacted]

Project Number: [redacted]

Project Dashboard

Boost your app with a Google API

Use Google APIs with your app to harness the power of Google's services and technologies

If not already done, create a Server API Key on Google Developers Console (the Server Key MUST NOT have IP restriction).

To do so:

1. open Google Developers Console

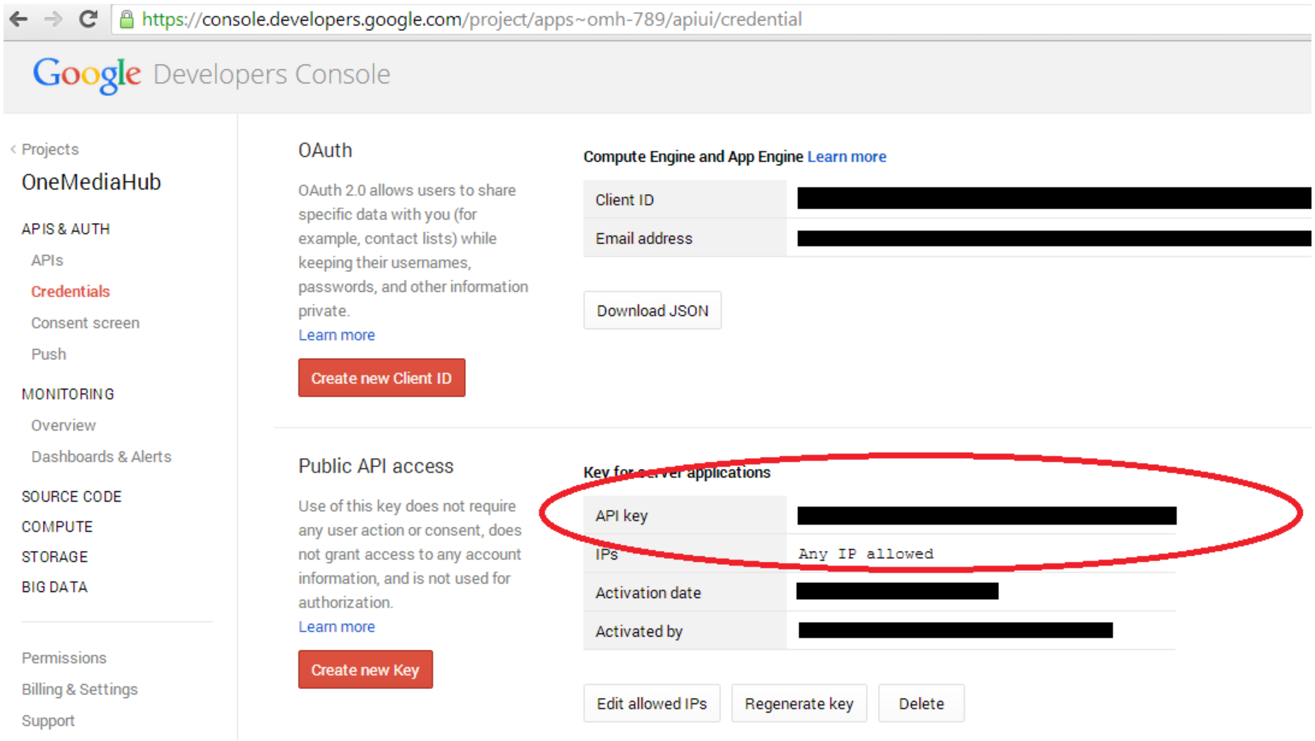
2. select the same project as earlier in the procedure (the one with the Project Number created moment ago)

3. go to APIs & auth → Credentials, click on “CREATE NEW KEY” in the “Public API access” section, select “Server key”

4. on next screen, leave it blank (no IP restriction), then click on Create

5. copy the generated API key

Figure H.6. Capptain - "Server API Key Creation"



OAuth

OAuth 2.0 allows users to share specific data with you (for example, contact lists) while keeping their usernames, passwords, and other information private.
Learn more

Compute Engine and App Engine Learn more

Client ID	[redacted]
Email address	[redacted]

Public API access

Use of this key does not require any user action or consent, does not grant access to any account information, and is not used for authorization.
Learn more

Key for server applications

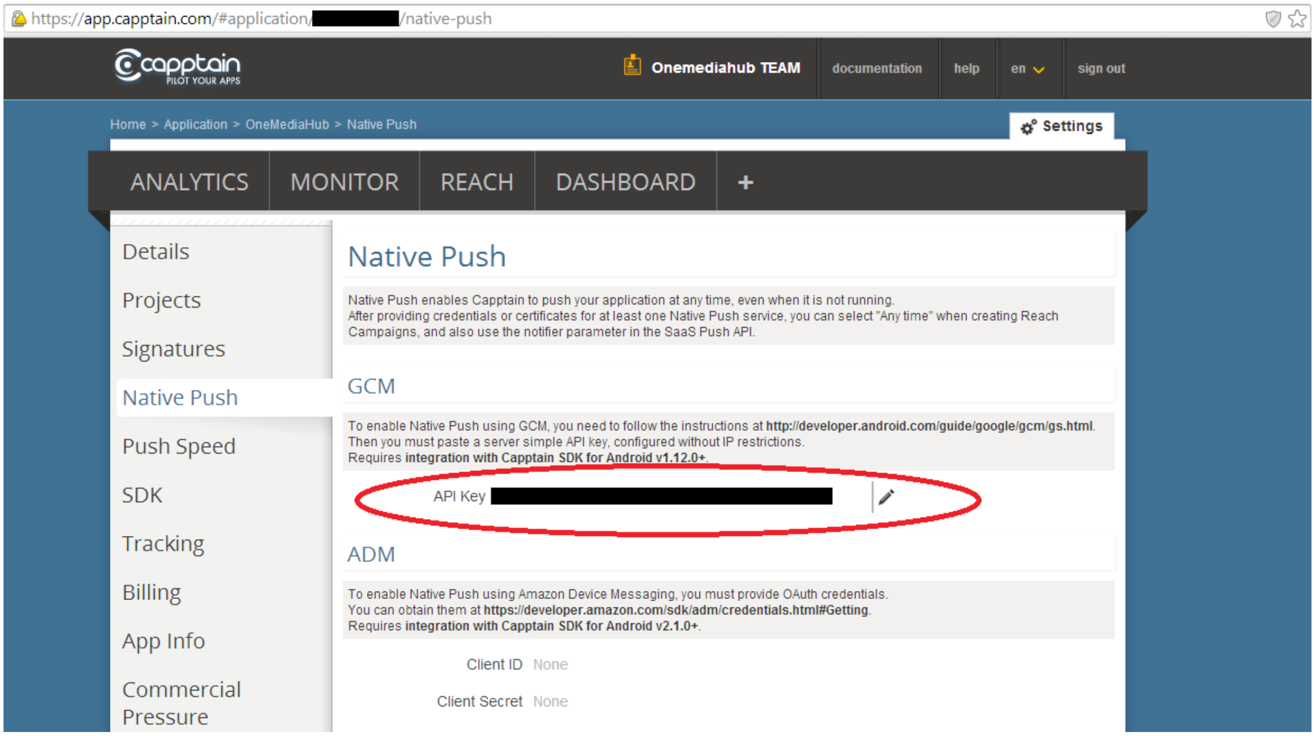
API key	[redacted]
IPs	Any IP allowed
Activation date	[redacted]
Activated by	[redacted]

Last step should be done in Capptain dashboard with the Server Key information:

1. Go to `https://app.capptain.com/#application/{YOUR_CAPPTAIN_APPID}/native-push`
2. In GCM section edit the API Key with the one you just generated and copied

You are now able to select “Any Time” when creating Reach announcements and polls.

Figure H.7. Capptain - "Edit API key"



Native Push

Native Push enables Capptain to push your application at any time, even when it is not running.
After providing credentials or certificates for at least one Native Push service, you can select "Any time" when creating Reach Campaigns, and also use the notifier parameter in the SaaS Push API.

GCM

To enable Native Push using GCM, you need to follow the instructions at **http://developer.android.com/guide/google/gcm/gs.html**.
Then you must paste a server simple API key, configured without IP restrictions.
Requires **integration with Capptain SDK for Android v1.12.0+**.

API Key [redacted]

ADM

To enable Native Push using Amazon Device Messaging, you must provide OAuth credentials.
You can obtain them at **https://developer.amazon.com/sdk/adm/credentials.html#Getting**.
Requires **integration with Capptain SDK for Android v2.1.0+**.

Client ID None

Client Secret None

Glossary

C

Cluster

A logical or physical group of machines working together to accomplish the same task.

L

Load balancing

The aim of load balancing is to gain a better, equal distribution of the loads on machines working together to accomplish the same task, i.e., machines in a cluster.

R

Redundant architecture

A system architecture in which the individual components are at least duplicated. The purpose of this approach is to assure the availability and reliability of the system; in addition to the two previous considerations, a load balancing aim is also pursued. The purpose of this architecture is to reduce the impact of system failures.

T

TCP/IP

see [24]

U

UDP

see [25]

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Colophon

This book is written in DocBook XML, version 5 of the RELAX NG scheme. The XSL-FO and HTML files are generated using xsltproc (compiled against `libxml` version 20632, `libxslt` version 10124, and `libexslt` version 813) and two stylesheet customization layers. The PDF file was generated using Apache FOP version 1.0. The validation of the XML source code (based on XML Inclusions) was accomplished using xmllint (based on `libxml` version 20632) and Jing version 20091111.

In the printed version, the book uses Times as the body font, Helvetica as the title font, and Courier as the monospace font.

The size of the XML source code of the whole book is 848 KB. Pictures are inserted in PNG and JPEG format. The five most frequent elements in this book are: `para`, `entry`, `row`, `productname`, and `listitem`.