



# Connecting Software

## Connect Bridge CB Exchange Server Sync – User manual

### Document History

Version	Date	Author	Changes
1.0	20 May 2015	DMI	Creation
1.1	19 Dec 2016	DMI	Updated after release
1.2	19 Dec 2016	JKT	Review 1
1.3	20 Dec 2016	DMI	Added configuration possibilities
1.4	12 Jan 2017	DMI	Update after changing installer

### Summary

This document describes the installation and configuration process of the Connect Bridge Exchange Server Sync

### Supported versions

Exchange: 2010SP1, 2010SP2, Exchange 2013, Exchange 2016, Online, Office 365

### Production version

2.0.0

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## 1 Overview

Microsoft Exchange Server is the most popular communication, collaboration and email messaging application today. It delivers the must have services like mail server, calendar, task manager and contacts manager. Companies can use it by installing it on their servers or can take advantage of the cloud services.

Usually a user has his own email account with mails, tasks, contacts and appointments but is not uncommon the scenario when a user has two or more mailbox accounts within same or different instances and versions of Exchange Server. The demand to keep mailboxes items synchronized leads to a problem. Connecting Software proposes a solution to this issue providing a tool which allows to synchronize multiple Exchange Mailboxes. For example if you need to synchronize one user on two or more exchange servers, even different versions of Exchange Server so that the user and the external party(in most cases customers) are not aware about that you are using two Exchange Servers or two mailboxes and for this purpose CB Exchange Server Sync Tool is an ideal solution.

The CB Exchange Server Sync Tool is an application dedicated to synchronize Microsoft Exchange user folders. Users and folders can be located either on the same version and instance of Exchange Server or they can be located on different instances.

The tool uses a windows service which performs the synchronization between mailboxes in periodic runs. The tool also provides a graphical user interface to set up the synchronization properties such as connection string to the data source, target folders and synchronization period.

The synchronization process runs in parallel with Microsoft Exchange Services in a non-blocking mode, therefore not influencing whatsoever in the general performance of Exchange Server itself.

**WARNING:** *Service is operating on Exchange mailbox level. The service is creating, modifying and deleting items. We are not responsible for recovering the mailbox to the initial state. Please test the service in your test environment first and create backups before implementing to the production environment.*

### 1.1 Key features

- Synchronize emails folders
- Synchronize contacts
- Synchronize tasks
- Synchronize calendar
- Synchronization between different Exchange versions
- Easy to install and to maintain
- Custom configuration for each synchronized user apart
- Provides run-time information about the executed synch operations
- Multiple tenants
- One-way and two-way synchronization

### 1.2 Supported versions

- Microsoft Exchange Server 2010 SP1
- Microsoft Exchange Server 2010 SP2
- Microsoft Exchange Server 2010 SP3
- Microsoft Exchange Server 2013

- Microsoft Exchange Server 2016
- Office 365

## 2 How it works

The CB Exchange Server Sync consist of 5basic components:

- CB Exchange Server Sync service
- CB Exchange Server Sync configuration portal
- CB Exchange Server Sync configuration service
- Connect Bridge platform
- MS SQL Databases

CB Exchange Server Synchronization Service is the core of the application. It runs as a Windows service which role is to check the synchronization pairs for changes.

This service uses the Connect Bridge service to connect to the Exchange Server transparently making all the required operations such as insert, delete, and update.

CB Exchange Server Sync configuration portal is web portal which allows you to configure CB Exchange Server Sync service and displays you activity of the synchronization process. However, the portal is not communicating directly with the database nor CB Exchange Server Sync. The direct operation with those parts are done by CB Exchange Server Sync configuration service.

### 2.1 Synchronization process

The synchronization process is periodically executed after start. Application seeks for inserted, updated or deleted items on every side of the synchronization pair on each shot of the execution. When it finds a change in one side of the synch-pair it reflect this change on the other side. When deleted or updated items are being synchronized, it performs action according the last change by date/time.

Synchronization is done in cycles, here named as iterations which runs periodically according to the application setup.

The synchronization tool has connection credentials only of the two users who have been delegated to Owner items to multitude user's folders within their exchange. On this principles the root users can determine changes for each delegated mailbox and refer this changes to the other users which makes appropriate actions.

## 3 System requirements

- .NET Framework 4.6.1
- Single Windows machine (at least Windows 8 or later, Windows Server 2012 or later) with reachable Microsoft Exchange servers which will be in use
- One Exchange account (mailbox with basic authentication) for each Exchange which will be in use
- Microsoft SQL Server 2012 or later (could be Express) reachable from machine where CB Exchange Server Sync will be installed
- Internet Information Services 5.1 or later

## 4 Installation process

Basically consist of following components:

1. CB Exchange Server Sync service which handles the synchronization logic
2. Connect Bridge with Exchange connector

- It is platform that provides connectivity to Microsoft Exchange server
3. ODBC Driver that provides connectivity between Connect Bridge and CB Exchange Server sync
  4. CB Exchange Server Portal and CB Exchange Server Management Service. Those components allows you to communicate with CB Exchange Server Sync service and provide the configuration possibilities

Let's start with the process of installation. Run (will be asked as administrator) the setup installer that was delivered to you.

However, before the installation you could be asked to install some of the prerequisites. Please, note that you need to have installed Microsoft SQL Server.

After finishing prerequisites installation the CB Exchange Server Sync is ready for installation. The very first screen you will see is the Welcome dialog (Figure 2 Welcome installation page), click *Next* to continue to Installation path dialog.

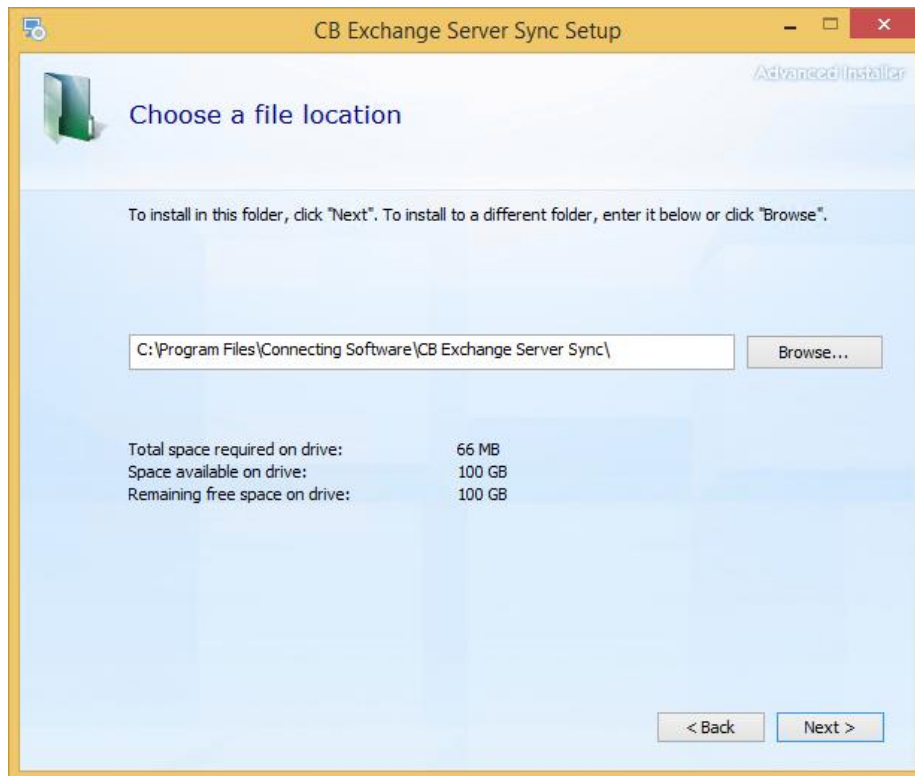


**Figure 1 Welcome page of prerequisites installation**



**Figure 2 Welcome installation page**

On the next screen you will be asked to specify target folder of the CB Exchange Server Sync. Click *Next* to continue.



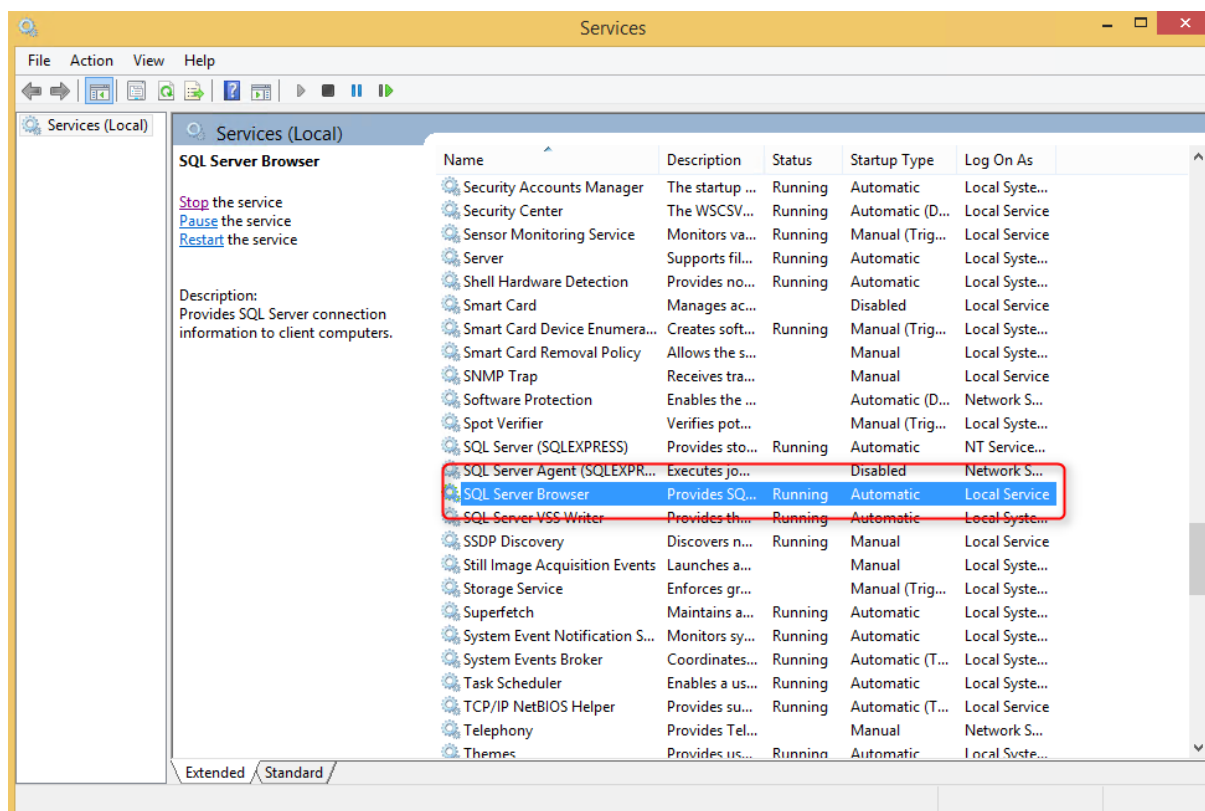
**Figure 3 Installation location dialog**

## 4.1 Database connection initializing

On the next screen you will be asked to create two SQL Server connection:

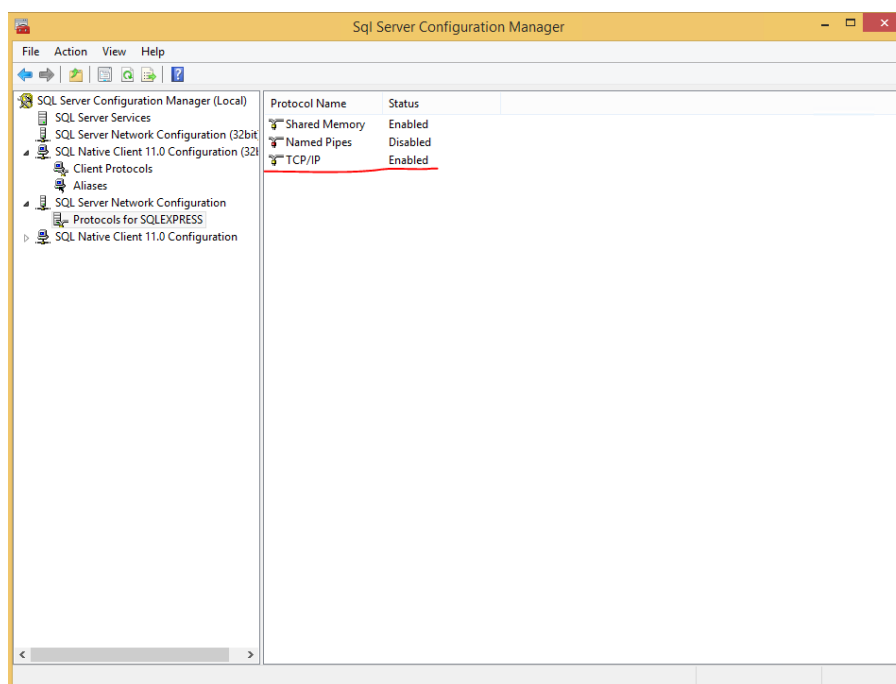
- One for the CB Sync Portal
- One for the service itself

Both dialogs gives you option to select SQL server within your network, however if you cannot find the server you want to use, you can type the name there or the SQL Browsing service is not up and running you are able to run the service on the machine where the SQL Server is installed see following picture.



**Figure 4 SQL Server Browser service**

The next steps of configuring the SQL Server is to allow TCP/IP protocol in the SQL Server Configuration manager (see following picture). This is needed to be possible connect to SQL Server. If the TCP/IP protocol is not allowed you will get the error during the installation and you will not be able to install the software properly. Please, make sure that TCP/IP protocol is allowed.



**Figure 5 Allowing the TCP/IP Protocol**



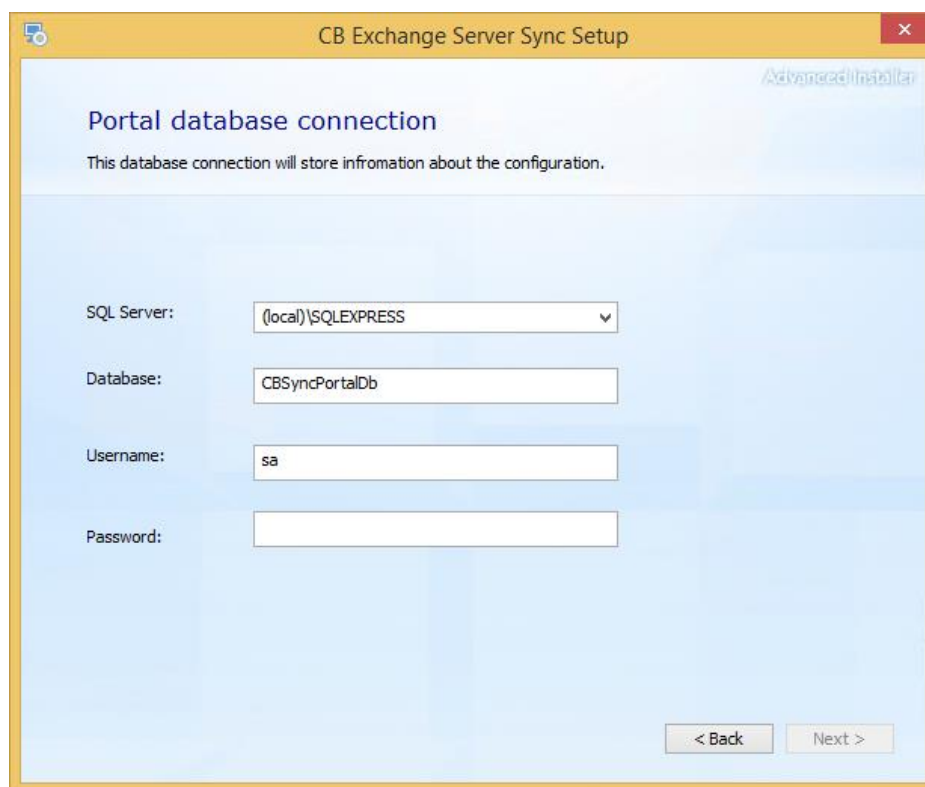
If all needed configuration of SQL Server is done you can continue in the installation of CB Exchange Server Sync. Now, we will continue with configuration of the database connection. All the fields are required. The user you want to use for database connections needs to have appropriate right for creating database, we are recommending to use Superadministrator (sa) user for this purpose. Also, the user must have allowed the SQL authentication via Username and password. After you fill all the fields, you are able to click *Next* to continue. The installer will check whether the user can connect to database, if not it will not allow to continue installation process. On the next screen you will configure the Exchange Sync Engine database connection (Figure 7 CB Exchange Server Sync engine connection dialog), the process is the same as the Portal database configuration.

After the database configuration is done there is last step in configuration – tenant configuration (Figure 8 Tenant configuration). All the fields are required:

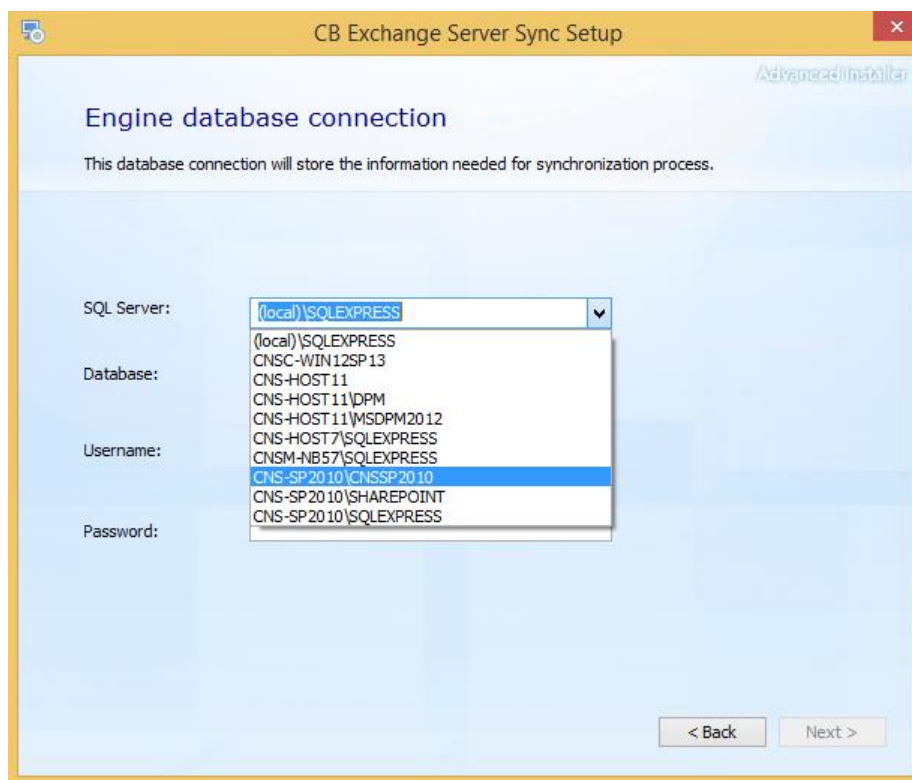
- Tenant name (company) – the name of the tenant within you will be operating
- E-mail – e-mail of the administrator which will be used for log in to the CB Exchange Server Portal
- Password – password for the administrator for log in to the Portal
- Password (repeat) – the same password for the administrator.

**NOTE:** Please make sure that you remember the user and the password.

This is all needed configuration of the software, now the setup will install the software.



**Figure 6 CB Exchange Server Sync Portal database connection dialog**

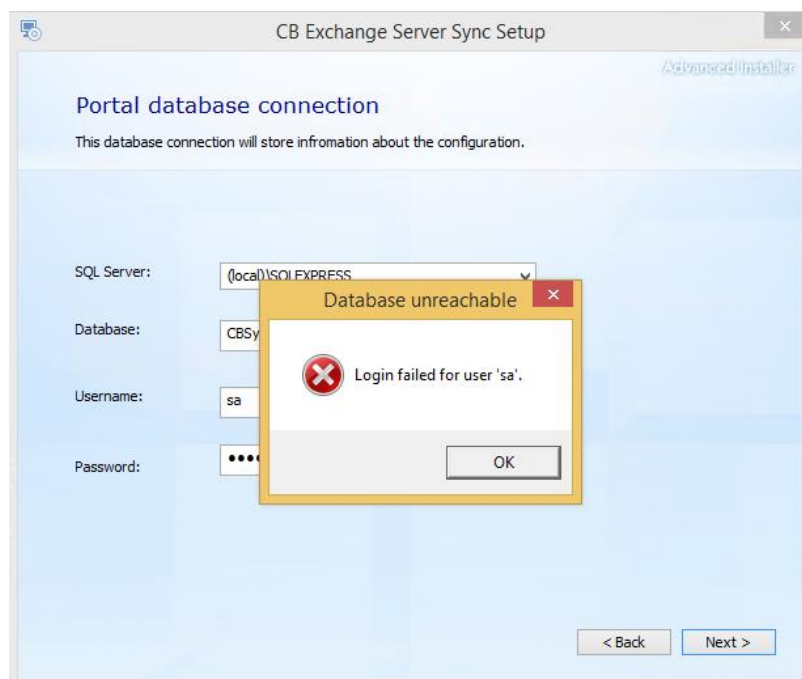


**Figure 7 CB Exchange Server Sync engine connection dialog**

**Figure 8 Tenant configuration**

## 4.2 Installation troubleshooting

During the installation you might face off several problems that this section might help you to solve in on your own.

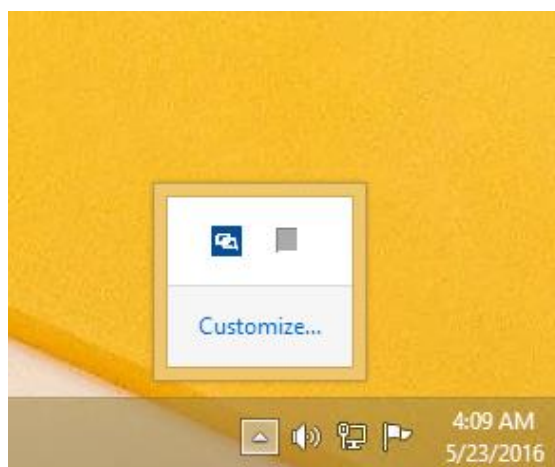


**Figure 9 Login failed**

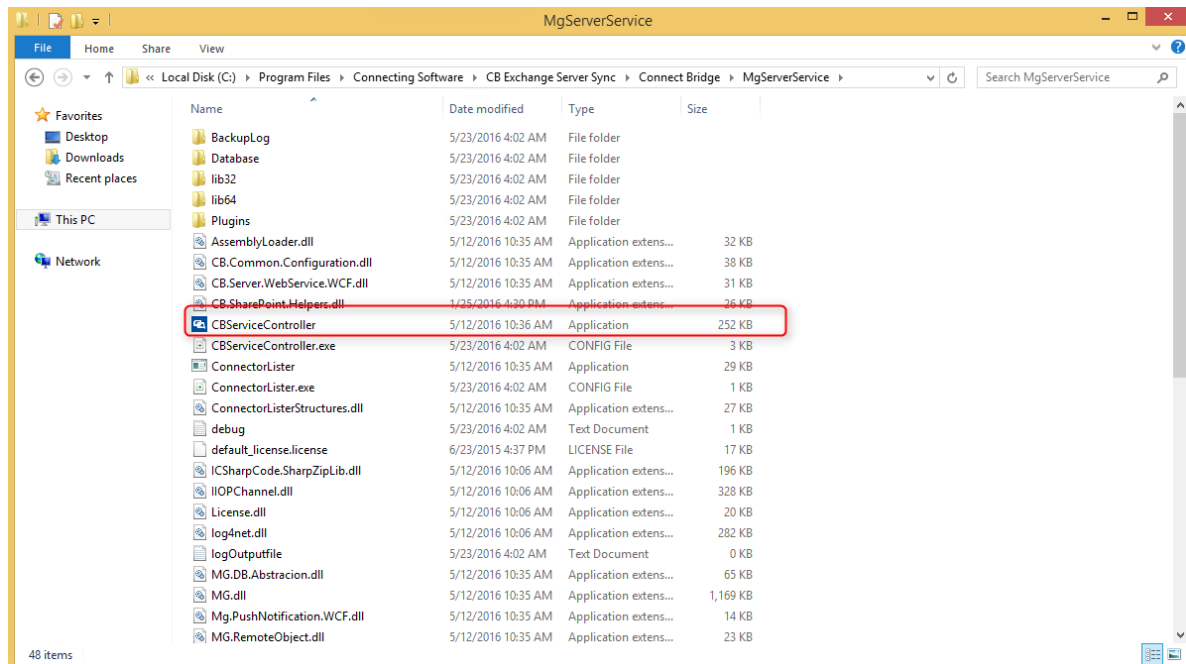
If you are getting error such as on the Figure 9 Login failed, most probably the login to your database is not correct, make sure that you pass correct credentials.

## 5 License requesting and license activation

After you successfully installed the CB Exchange Server Sync, you need to activate the software. This is done by “request and activation” process. Navigate to the installation folder of CB Exchange Server Sync (default *C:\Program Files\Connecting Software\CB Exchange Server Sync*). There is folder *Connect Bridge* which contains Connect Bridge platform software, navigate inside the folder and open *MgServerService* which contains application called **CBServiceController.exe** run the application as an administrator (see Figure 11 CB Service Controller location). The tray icon in the right bottom corner of the taskbar (see Figure 10 Tray of CB Service Controller).

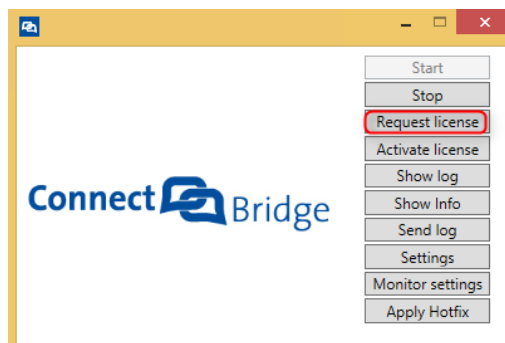


**Figure 10 Tray of CB Service Controller**

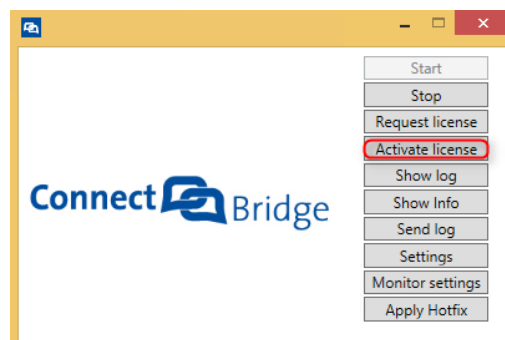


**Figure 11 CB Service Controller location**

Double click on the tray icon and the application will pop up. Click Request license, the application will look for some email client. If no client found it will allow you to save the request file to disk. The request file needs to be sent to the appropriate person from Connecting Software (person who sent the installer). See the following images that should help you.



**Figure 12 Request license**



**Figure 13 Activation license**

After the activation of license the Connect Bridge server needs to be restarted.

## 6 Configuration process

After the installation is done properly it right time to configure the service. The configuration is done, as mentioned above, by the CB Exchange Sync portal.

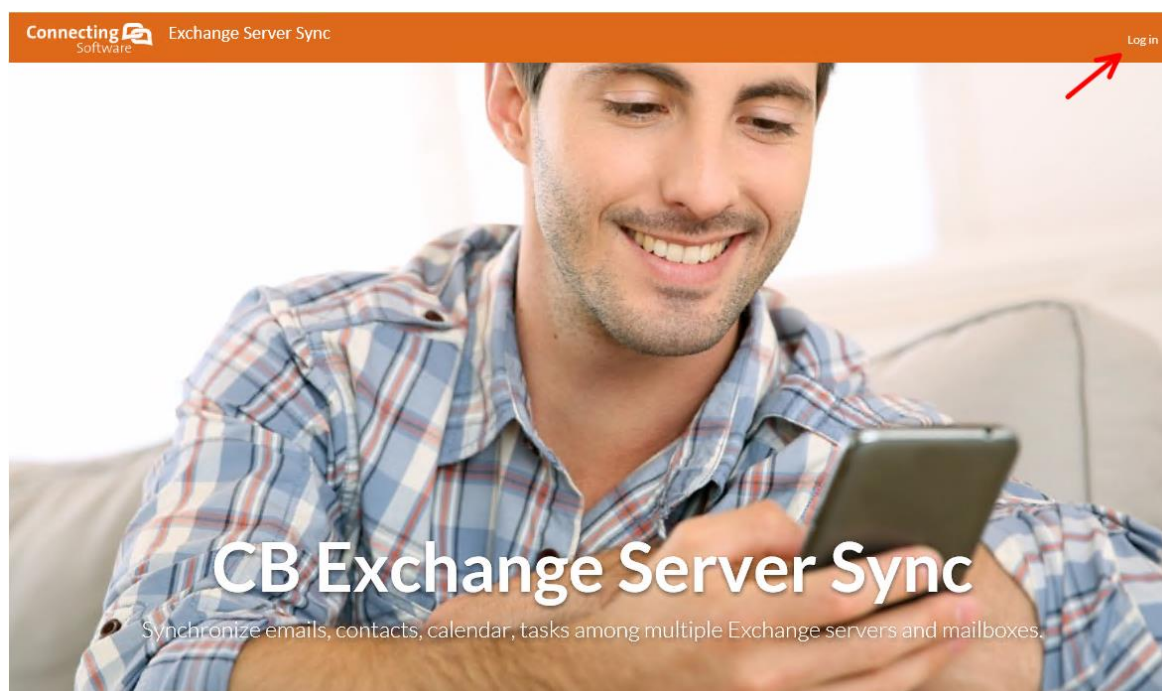
### 6.1 Login into portal

This portal can be accessed by the URL address - <http://localhost/CbSyncPortal/> or via shortcut created on your Desktop during the installation process (see image below).



**Figure 14 CB Exchange Server Sync portal shortcut**

After the website is loaded (first access could take a while), you need to login into the portal – click **Log in** at the very top right corner (see **Error! Reference source not found.**).



**Figure 15 Homepage of the CB Exchange Server Sync portal**

The CB Exchange sync portal has some user hierarchy which defers responsibility for every role involved:

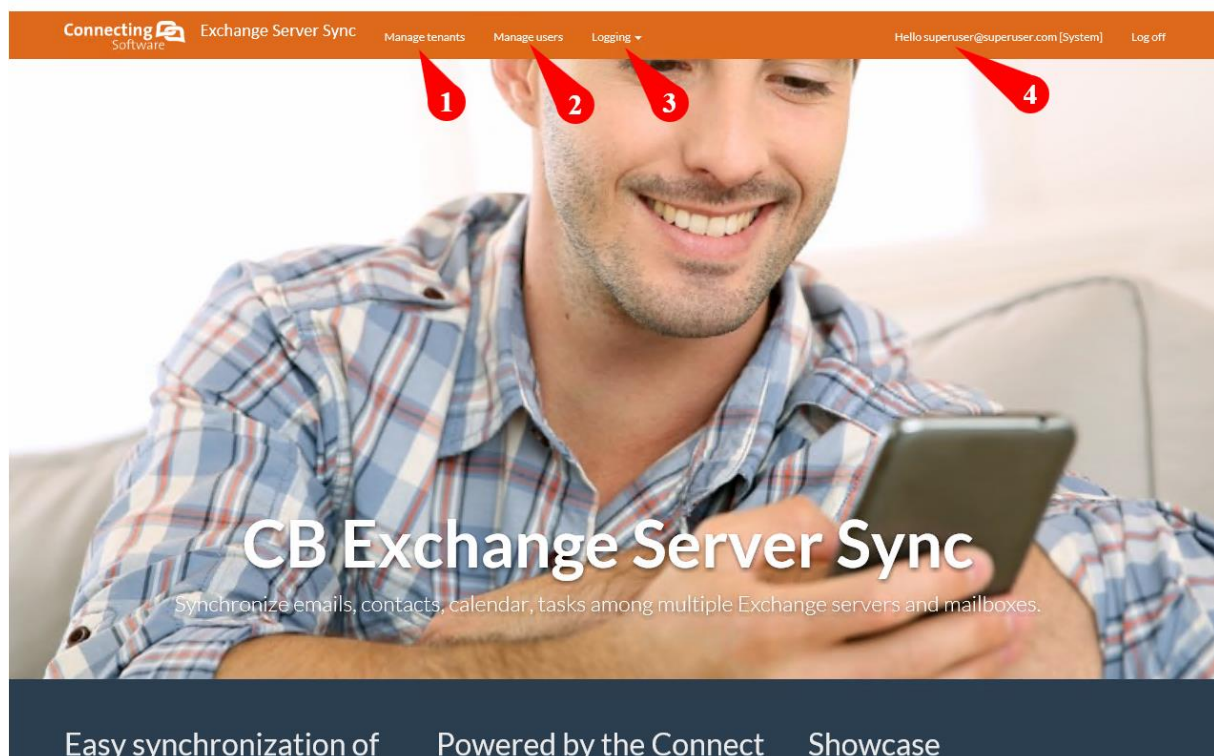
- *Super user* – is user which is running under System tenant (this tenant is created automatically and cannot be deleted nor changed). This user is responsible for creating new tenants, managing administrators and managers of existing tenants
- *Tenant Administrator* – this user is able to manage everything within his tenant – he is able to create another tenant administrators/managers, manage the Exchange server and pair configuration

- *Tenant Manager* – this is low privilege user, this user is only able to manage synchronization pairs

### 6.1.1 Login as a Super user

The initial super user e-mail is [superuser@superuser.com](mailto:superuser@superuser.com) and password **Superuser**. This can be changed by the end user later on.

As mentioned in previous section super user is user with the highest privileges. After successful login with super user, you are able to manage tenant, users, see the logs, change password for super user (see Figure 16 Login with the Super user)



**Figure 16 Login with the Super user**

### 6.1.2 Login as a Tenant administrator

To log in you need a tenant administrator created by Super user (see section above). Right after successful login you are able to manage your tenant see Figure 17 Homepage after login, you can:

1. Manage your users – you can create another user which will have access to the portal for your tenant
2. Create configurations – this will be describe later on in next chapters.
3. Trouble shoot your synchronization and portal via **Logs**
4. Change your user password
5. Log off



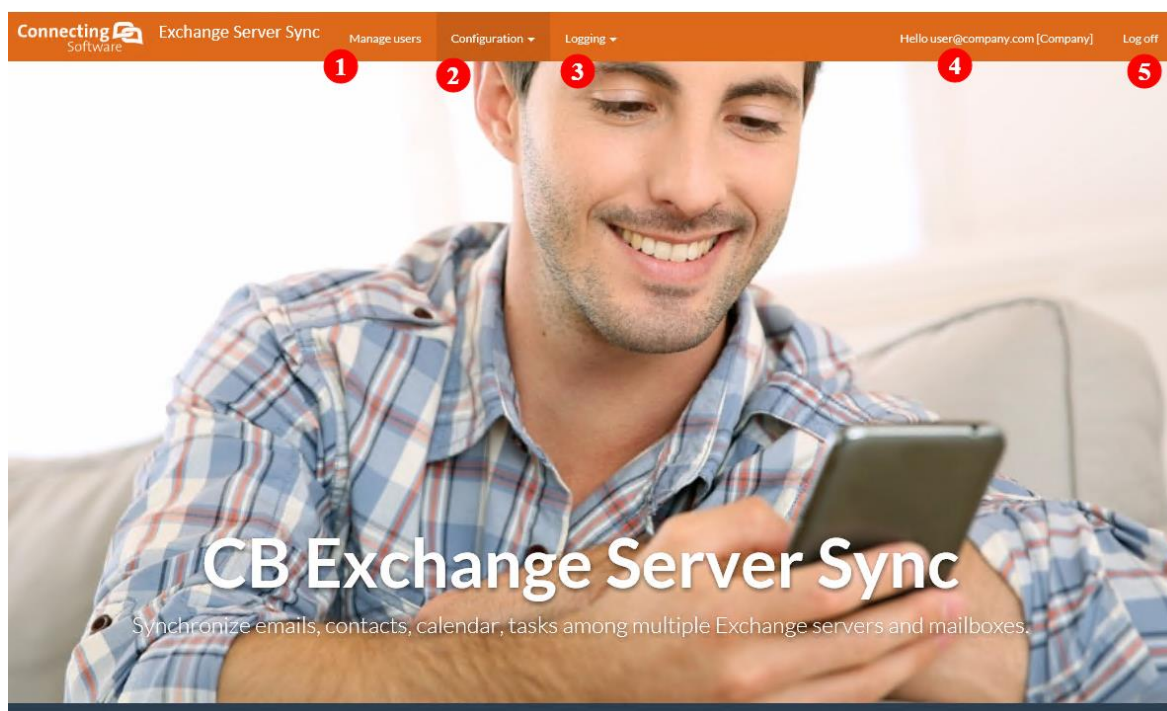
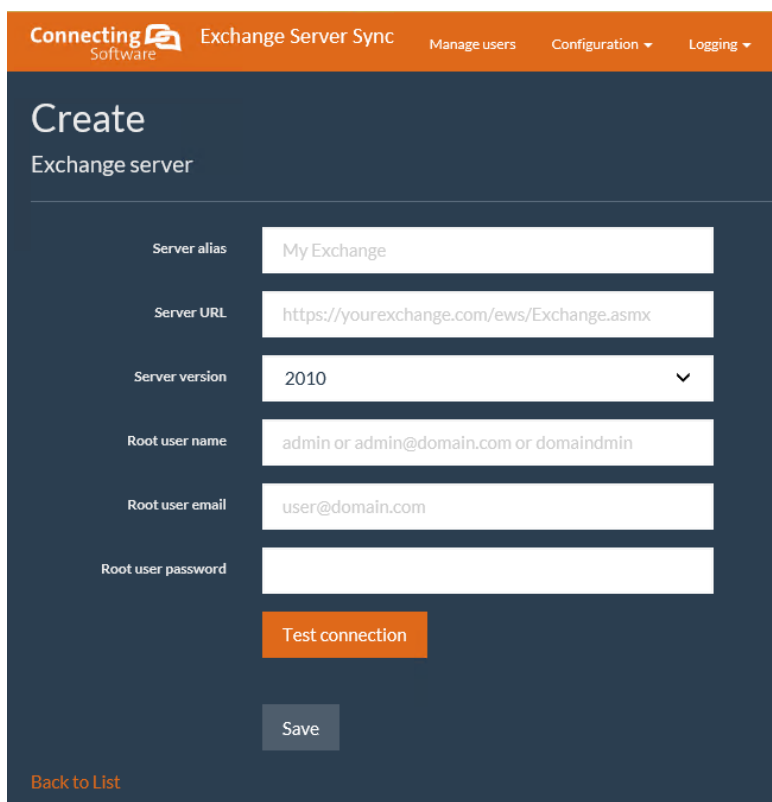


Figure 17 Homepage after login

## 6.2 Configuration of Exchange server

The configuration process consist of two parts – Exchange Server and Pair configuration. This section describes the Exchange server configuration. *Please note, that you need to be logged in as a Tenant administrator.*

To configure Exchange Server navigate to Configuration -> Exchange servers. The list of already existing Exchange servers will be showed. To create new one click **Create New**, the form as Figure 18 Create Exchange Server form will be shown.



**Figure 18 Create Exchange Server form**

### 6.2.1 Concept of root user

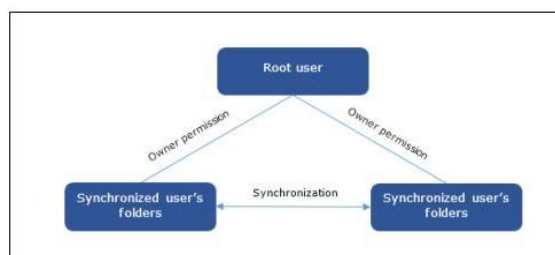
To be able to configure CB Exchange Server sync properly, it is necessarily to understand the concept of root user.

The Root user is the user on each side of the synchronization part which is granted access to all the other synchronized users which are to participate in the synchronization. Thus each user wishing to participate in the synchronization process needs to grant this root user Owner permissions.

Any exchange user can become a root user if other users grant them the 'Owner' permission level of their folders. This principle with a single root user is implemented in order to simplify the process and to avoid password exposure of the participating users.

The concept of the root user is describe at the following picture Figure 19 Root user concept diagram.

This way of configuration is more suitable for users synchronizing more than one pair because it will save time when it comes to configuring the service in addition to that fact that there is no need to store the password of each individual exchange user participating in the synchronization process.



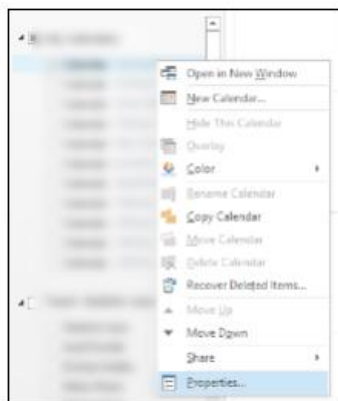
**Figure 19 Root user concept diagram**



### 6.2.1.a How to grant owner permission to the Root user

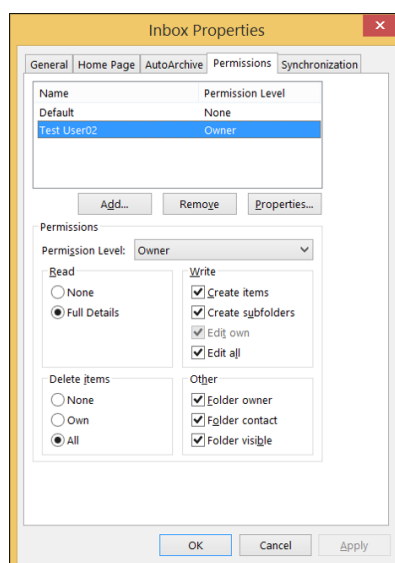
There are two possibilities how to grant the appropriate permission to the root user – via Microsoft Outlook or PowerShell script directly on Exchange Server. We will describe the procedure “how to grant owner permission to calendar folder for root user via MS Outlook” as an example:

1. From Outlook, go to your Calendar tab, right click your calendar and click Properties as shown below



**Figure 20 Outlook folder properties**

From the calendar properties dialog shown below, click the Permissions tab, click “Add” button to display the “Add Users” screen. Select your root user from the list of users and change the permission level to “Owner” from the Permission Level options list.

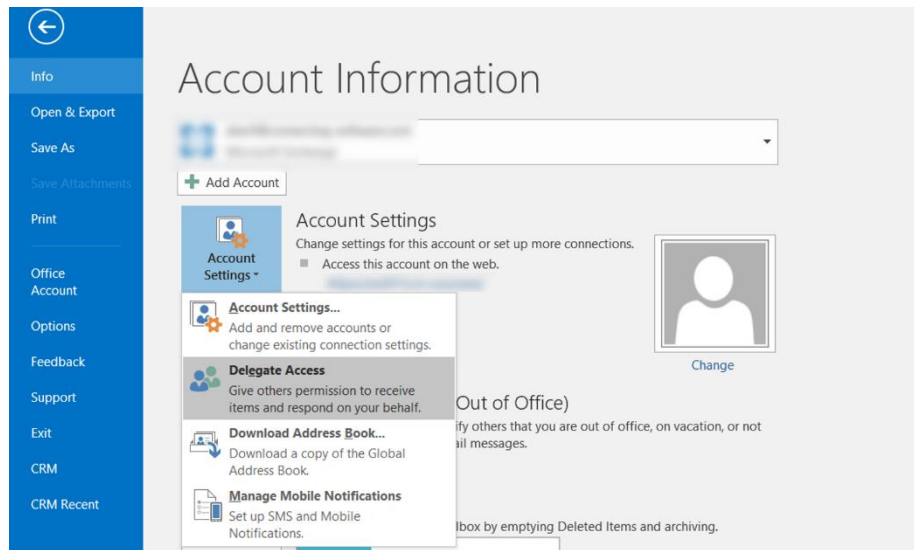


**Figure 21 Properties of folders**

**NOTE:** Please, contact your system administrator for assistance in case the Permissions tab in the Properties window isn't available. Repeat the steps discussed in this section for every folder which will be synchronized by the root user.

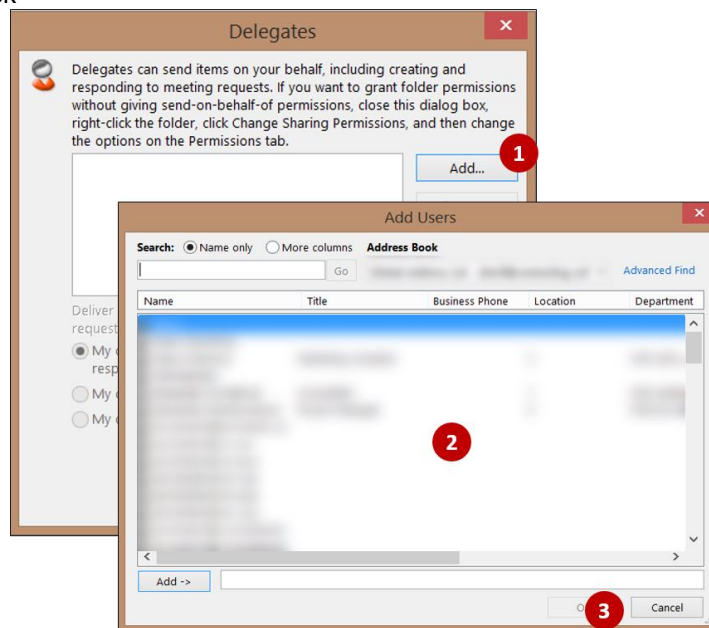
#### Private items synchronization

If you want private items to be fully synchronized you need to set up the permission so that the Delegate can see your private items. To do that, click “File” from Outlook's main menu to display the “Account information” screen shown below, click “Account Settings” and choose “Delegate Access”.



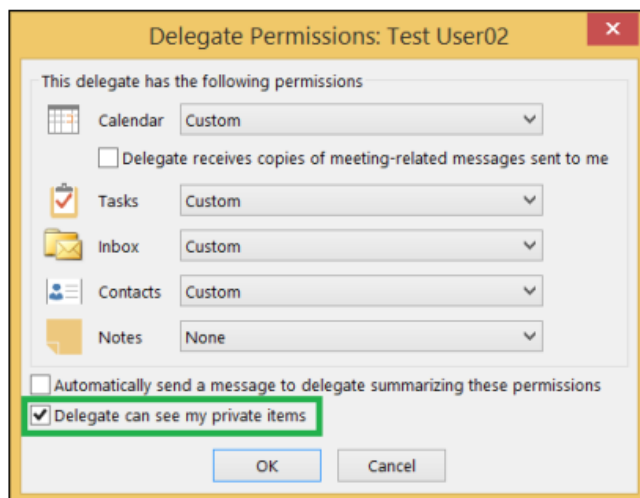
**Figure 22 Account Outlook information**

As shown below, from the “Delegates” screen, click “Add” to select a user, select the required user and click “ok”



**Figure 23 Delegate access dialog**

From the “Delegate Permissions” dialog, choose the desired permissions and enable the option “Delegate can see my private items” as shown in figure 14 below.



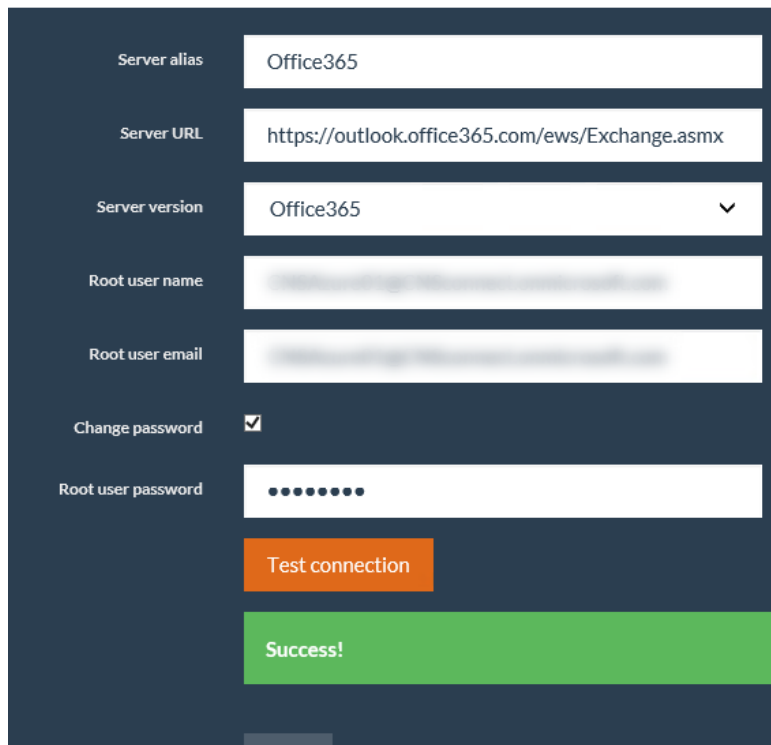
**Figure 24 Delegate access user properties**

2. The same operation could be done via PowerShell on your Exchange server.

After we created the root user(s) we are able to continue in configuration process of Exchange server. For the correct configuration of Exchange server you will need following information:

- *Server alias* – it is an alias for your Exchange server configuration for easier identification of the configuration
- *Server URL* – Exchange Web Services (EWS) URL of you Exchange server. Possible values are:
  - <https://yourexserver.domain.com/ews/Exchange.asmx>
  - Office365
- *Server version* – the version of the Exchange server you are about to configure
- *Root user name* – the user name of the root user
- *Root e-mail address* – the primary e-mail address of the root user
- *Root user password* – the password of the root user

After you fill in the needed information you need to test your connection before you could save the configuration. As shown below, we got “401 Unauthorized” error message as we miss typed the root user name and we are not able to save the configuration until the connection is successful – see the Figure 25 Create Exchange Server filled form.



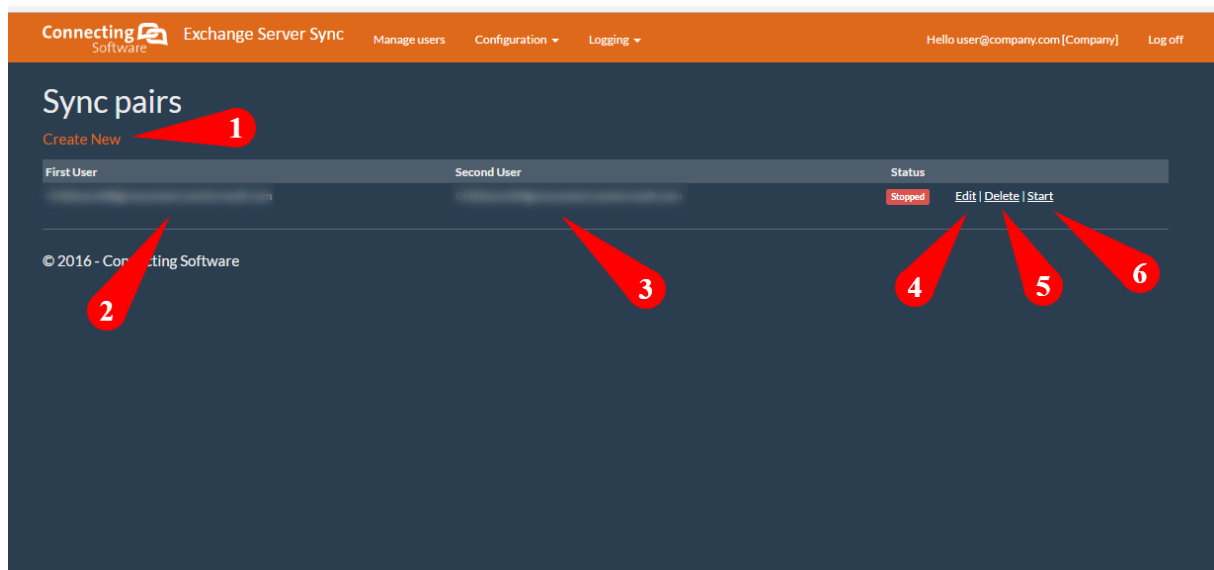
**Figure 25 Create Exchange Server filled form**

After the Exchange server is successfully configured we can move on pair configuration.

### 6.3 Synchronization pair configuration

Pair configuration is the very last step to the final configuration of CB Exchange Server Sync. The synchronization pair is pair of two Exchange users which will synchronize together.

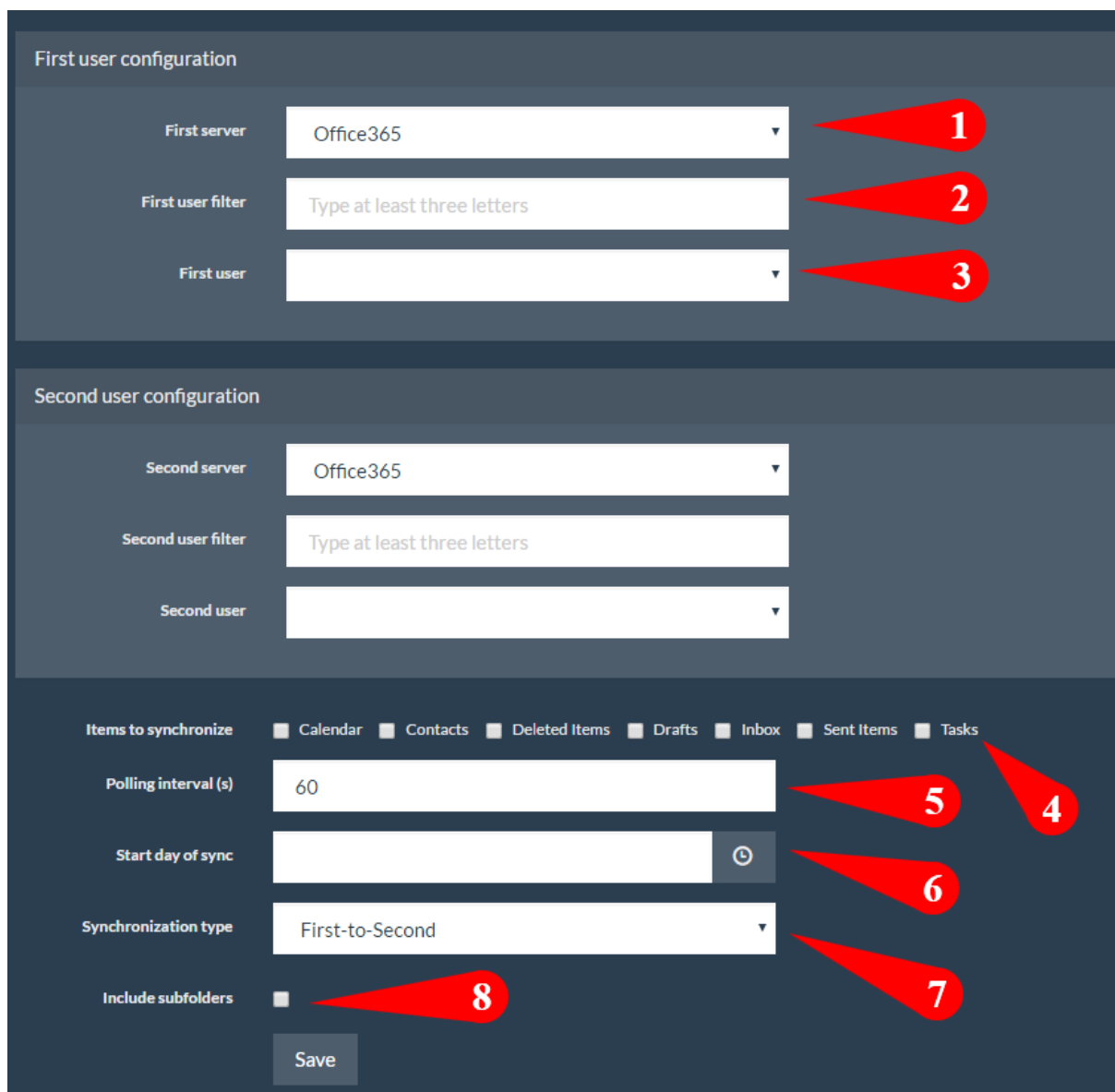
To configure pairs navigate Configuration -> Sync pairs. The following screen will be shown.



**Figure 26 Sync pairs main screen**

The screen for you will be without any pair, however once you have at least one pair you can edit(4), delete(5) or start(6) synchronization for specific pair.

To create new pair click Create New(1). The following screen will be shown.



The screenshot shows the 'Create new pair' screen with the following sections and callouts:

- First user configuration:**
  - 1: First server dropdown menu (Office365)
  - 2: First user filter text input (Type at least three letters)
  - 3: First user dropdown menu
- Second user configuration:**
  - Second server dropdown menu (Office365)
  - Second user filter text input (Type at least three letters)
  - Second user dropdown menu
- Items to synchronize:**
  - 4: Calendar checkbox
  - 5: Contacts checkbox
  - Deleted Items checkbox
  - Drafts checkbox
  - Inbox checkbox
  - Sent Items checkbox
  - Tasks checkbox
- Polling interval (s):** 60 (Callout 5)
- Start day of sync:** (Callout 6)
- Synchronization type:** First-to-Second dropdown menu (Callout 7)
- Include subfolders:** (Callout 8)
- Save button**

**Figure 27 Create new pair screen**

The first section contains the first user of the synchronization pair – the primary account – while the second section contains the second user – the replica account.

### Primary and Replica concept

The first section contains the first user of the synchronization pair – the primary account – while the second section contains the second user – the replica account.

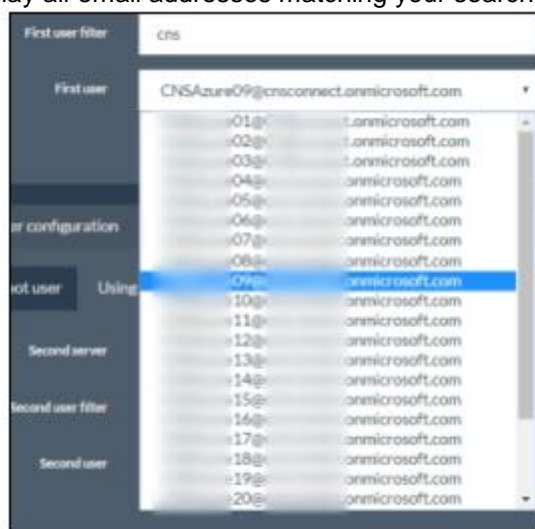
Action on Primary account	Action on replica account	Effect on Primary account	Effect on replica account
Deleting an item	Deleting the same item	Item will be deleted	Item will be deleted
Updating an item	Updating the same item	Item will be updated	Item will be updated by Primary account

			updates and replica account updates will be lost
Updating an item	Deleting the same item	Item will be deleted	Item will be deleted
Deleting an item	Updating the same item	Item will be deleted	Item will be deleted

For example, if an item is deleted from the primary account but updated at the replica account, then the item will be deleted from the replica account as shown in case 4 in the above table. In other words, actions done at the primary account are overriding actions done at the replica account, except when an item is deleted from the Replica account as shown in case 3 in the above table.

Now we can move to the setting of the pairs. Let's describe all possibilities:

- *First server (1)* – this is the alias we gave to the Exchange Server root user configuration that we configured previously
- *First user filter (2)* - Using the filter you can easily search for the exchange user participating in the synchronization pair. You need to type at least 3 letters from the email address of the user and the list will display all email addresses matching your search text as shown below.



**Figure 28 User filtering**

- *First user (3)* - choose the first user from the list of users displayed in the First User List.
- *Follow the same steps for set up second user*
- *Items to sync (4)* - Check the items that you want to synchronize. At least one item need to be checked to able to save the pair configuration.
  - **Note: Make sure that the root user has owner permission**
- *Polling interval (5)* - The synchronization service needs to check the Exchange server for new changes since the last synchronization. This number indicates how often to check for updates
  - **Note: Smaller interval is better for faster and better synchronization but it increases the traffic.**
- *Start date of sync (6)* - All items created or modified on that date and later will be synchronized. Any item created or modified before that date will not be synchronized.
- *Synchronization type (7)* – type of the synchronization for this specific pair
  - *First-To-Second:* Changes made at the first user will be replicated to the second user but not the opposite.

- *Second-To-First*: Changes made at the second user will be replicated to the first user but not the opposite.
- *Bidirectional*: Changes made at any user will be synchronized with the other user.
- *Include subfolders (8)* - Check this option to include subfolders in the synchronization process (applies only to mail folders like inbox, draft, sent and deleted items)

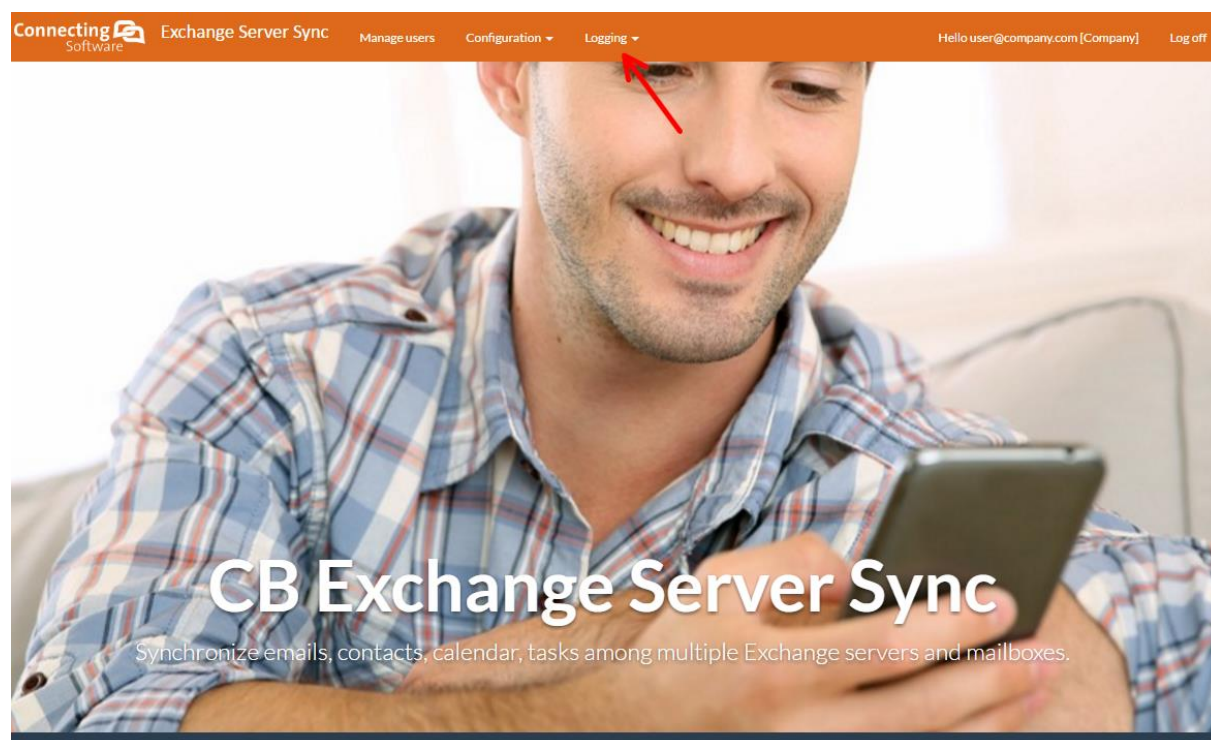
Now, click “save” to save the pair configuration. You will be redirected to the Pair Configuration page (see Figure 26 Sync pairs main screen). After this you are able to start synchronization for created pair.

## 7 Troubleshooting

This section describes possible problems you might face off while using the CB Exchange Server Sync.

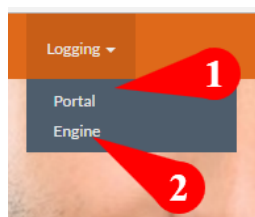
### 7.1 User logs

The user logs from the CB Exchange Sync and related component could be found in the CB Exchange Sync Portal. Please, navigate *Logging* at the very top menu – see Figure 29 Logging navigation.



**Figure 29 Logging navigation**

There are two types of loggings – *Portal* (1) and *Engine* (2). The portal logs are showing information related to portal management such as creating tenant, synchronization profile etc. On the other hand Engine logs are showing only related stuff to CB Exchange Server Sync service such as errors/warnings/info about the synchronization process.



**Figure 30 Types of loggings**



## 7.2 Deep logs

The full logs of the CB Exchange Server Sync service could be found at C:\[installation folder]\Connecting Software\CB Exchange Server Sync\Engine\log (by default it is C:\Program Files\Connecting Software\CB Exchange Server Sync\Engine\log). The logs contain most of the action that the service is doing.

Another service involved in the process is Connect Bridge server. This service has own logs as well, the path to log file is following C:\Program Files\Connecting Software\CB Exchange Server Sync\Connect Bridge\MgServerService\logOutputfile.txt

In case of contacting support please provide above mentioned logs – it will help first level support.

## 7.3 Most common issues

This section will describe most common issues that you can face off.

### 7.3.1 Folder calendar synchronization failed because no results were found. The time stamp will be reverted

The synchronization process is trying to resolve the root user mailbox and if it fails, then the above mentioned error occurs. The error could occur due to various reasons, but in most of the cases it happened when the e-mail address is not correct or the e-mail address used by the root user is not a primary e-mail address.

### 7.3.2 Some Items Are Not Being Synchronized

This could happen because of two reasons:

- Due to the “Start Day of Sync” field, as explained earlier, items created before that date will be skipped by the synchronization process even when those items are modified later on, after starting the synchronization.
- Due to items’ privacy. By default, we don’t synchronize private items, however as explained earlier in section [Private items synchronization] of this document you could enable this feature via “Delegate Access” option. However, only new private items which are created after enabling this feature will be synchronized.

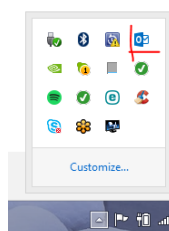
### 7.3.3 Cannot find Office365 EWS URL

As explained earlier, the EWS URL of Office365 is <https://outlook.office365.com/ews/Exchange.asmx> or simply “Office365” as the service is capable of auto discovering the EWS URL.

### 7.3.4 How to find correct Exchange Server version

The correct settings of the Exchange Server version is very important for synchronization process. You have several possibilities how to discover your Exchange Server version.

1. You can contact your IT administrator. He/She should have this kind of information
2. Using Microsoft Outlook
  - a. Press and hold CTRL while you right click the Outlook icon in the notification area – right of the task bar

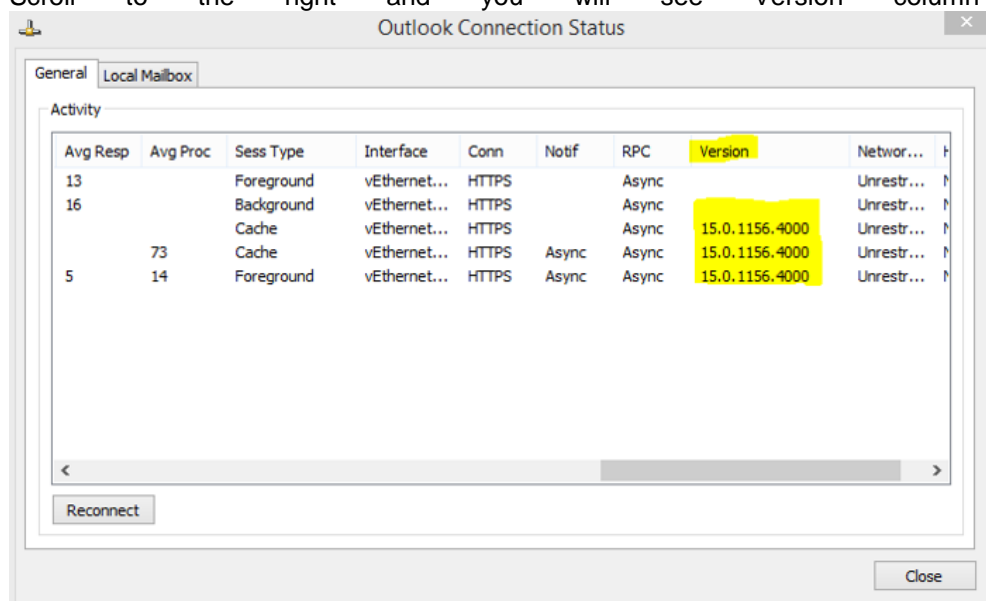


**Figure 31 Task bar**

- b. Click Connection status



c. Scroll to the right and you will see Version column



**Figure 32 Connection status dialog**

d. Compare the version with the bellow table

#### EXCHANGE SERVER

#### VERSION

<b>2007</b>	8.0.685.24 or 8.0.685.25
<b>2007 SP1</b>	8.1.240.006
<b>2007 SP2</b>	8.2.176.002
<b>2007 SP3</b>	8.3.83.006
<b>2010</b>	14.0.639.21
<b>2010 SP1</b>	14.1.218.15
<b>2010 SP2</b>	14.2.247.5
<b>2013</b>	15.0.516.032