Agile Salesforce to Exchange Synchronizer
User's Guide

v6.6.1

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1 Overview

This document describes essential steps required to get Agile GrinMark Exchange Synchronizer up and running.

1.1 Terminology

Synchronizer

Short for Agile GrinMark Exchange Synchronizer.

Synchronization Profile

A set of Synchronization Scenarios applied to a number of users.

Synchronization Scenario

A number of Synchronization Rules to synchronize items of some kind. For example, two Rules responsible for synchronization of contacts from CRM to Exchange and from Exchange to CRM are combined together into “Synchronize Contacts” scenario.

Synchronization Rule

Single directed relationship between CRM and Exchange. For example, rule describes how to copy data from Exchange Contact to CRM Contact. Another rule describes how to copy contact data back. Rule may also define the way to find a Contact or an Account by Email address. Or it may define a way to make new CRM Case from Email message and so on.

CRM Item

Any object in CRM. It can be an Account, an Opportunity or any other entry.

Archive Email to CRM Item

Connect Email or document to a given CRM item.

EWS

Exchange Web Services. Exchange server component essential for synchronization.

1.2 What’s New

- Version 6.6.1
  - Support for Microsoft Graph API.
- Version 5.5.1
  - Support for RBAC for Apps in Exchange (cure for ApplicationImpersonation retirement)
  - Support for OAuth in Salesforce
  - Switch to SF API v62.0
- Version 5.4.2
  - OAuth refresh token support
- Version 5.4.1
  - OAuth support
- Version 5.3.3
  - Ability to set empty value to Title field of Contact record in Exchange.

- Version 5.3.2
  - Daily digest email (per user, with summary of synchronized items)
- Version 5.3.1
  - Synchronization of attendees
  - Sync meeting deletions
  - AllDay events support
- Version 5.2.2
  - Support for Linked Contacts
  - Skip fields if missing in Salesforce
  - Update to the latest SQLite.dll
  - Issue with Exchange 2007 Tasks fixed
  - Relate Items fixed
- Version 5.2.1
  - Support for TLS 1.1 and TLS 1.2
- Version 5.1
  - Information about auto created and linked items is now reflected in Journal
  - About dialog now contains buttons to zip logs, zip data, open data folder
  - Merge for appointments with same name became faster
  - Appointments merge using GlobalObjectId field
- Version 4.5
  - Recurring meeting synchronization support Exchange->CRM.
  - Option to disable SSL3 and use TLS instead. This is to protect from POODLE vulnerability.
- Version 4.4
  - Notifications are shown at run-time in Profile Manager.
  - Desktop shortcut is added during install.
- Version 3.11

  - Global options editor (synchronization interval, verbose level, notifications)
  - Email notifications for synchronizer actions, errors and events
  - Journal Viewer with search, auto-update and filtering
  - Synchronize items from a certain date (via “Reset Last Sync Time” dialog)

- Version 3.10
  - Exchange 2013 support, including Office 365 deployment
  - Move/Copy archived email
  - User login checker
  - Exchange 2010 support

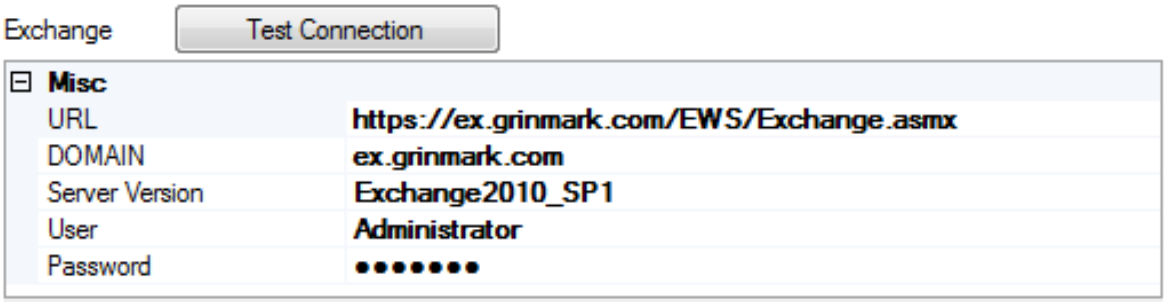
1.3 Prerequisites

- Salesforce.
- Microsoft Exchange 2007 SP1 or higher or Office 365.
- Windows-based host to run the Synchronizer (may be shared with Exchange host).
- License (a trial license may be requested during configuration).

2 Configuration and Deployment

2.1 Preparing MS Exchange

URL to Exchange web services and admin user with impersonation access to all mailboxes is required.



Admin user account used for connecting to Exchange server should be able to impersonate as any mailbox user involved in synchronization with SugarCRM.

To configure Microsoft Exchange Impersonation for specific users or groups of users, complete the following steps.

2.1.1 Microsoft Exchange Server 2007

Click **Start > All programs > Microsoft Exchange Server 2007 > Exchange Management Shell**.

On the Microsoft Exchange Server, while logged in as domain administrator, run the following power shell commands to set the correct impersonation rights:

For example:

For more information about configuring the Microsoft Exchange 2007 Impersonation feature, visit MSDN Library and search for “Configuring Exchange Impersonation” (*http://msdn.microsoft.com/en-us/library/bb204095(EXCHG.80).aspx*)

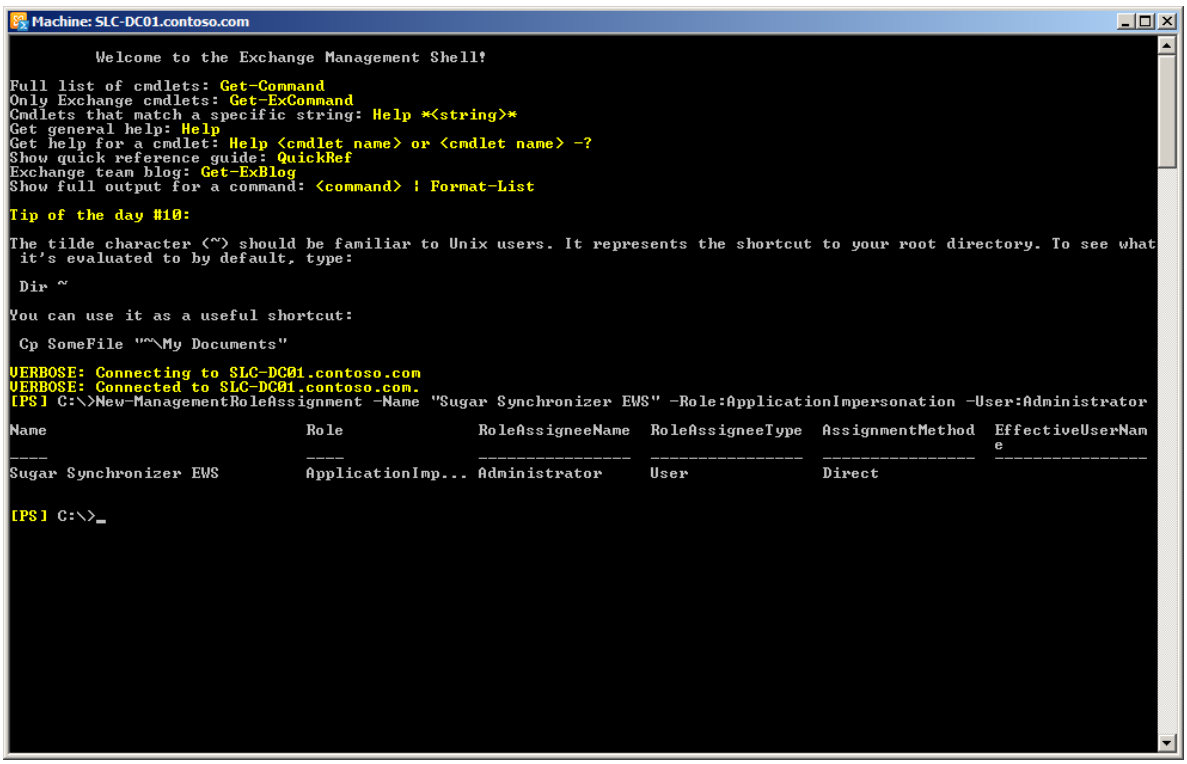
2.1.2 Microsoft Exchange Server 2010

Click **Start > All programs > Microsoft Exchange Server 2010 > Exchange Management Shell**.

Type the following command to allow impersonation:

For example:

For more information about configuring the Microsoft Exchange 2010 Impersonation feature, visit MSDN Library and search for “Configuring Exchange Impersonation” (*http://msdn.microsoft.com/en-us/library/bb204095(v=exchg.140).aspx*)

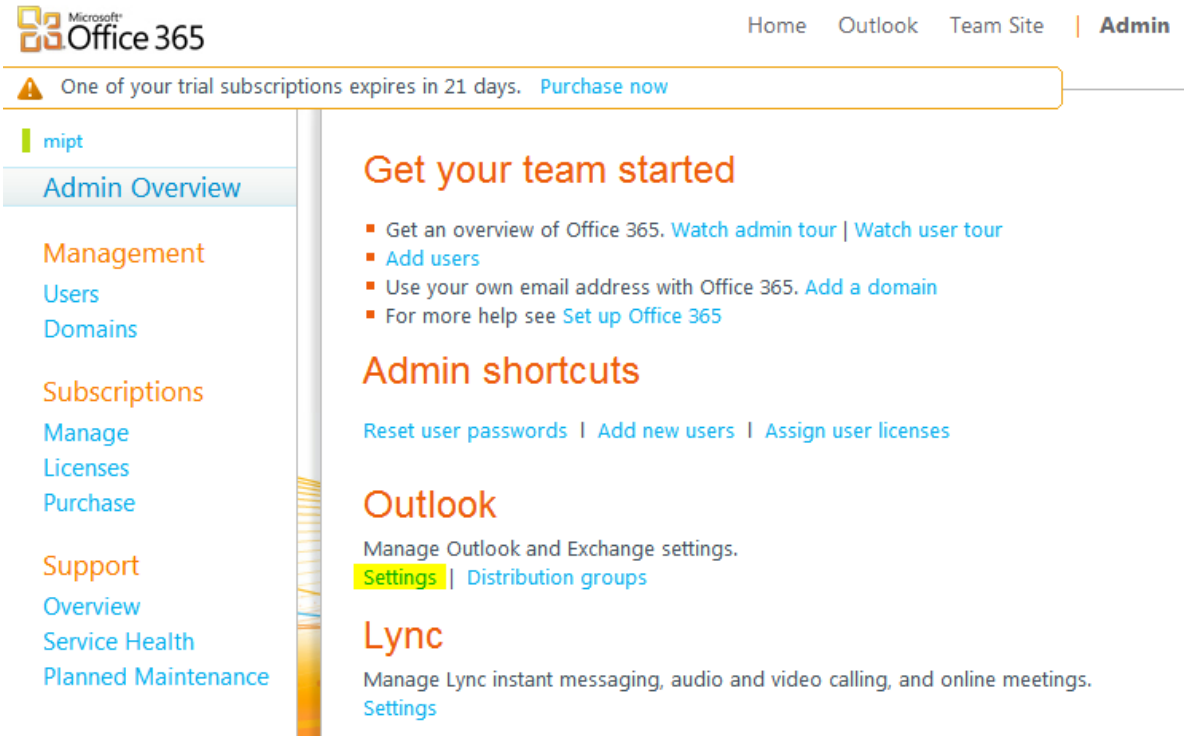


2.1.3 Office 365 2010

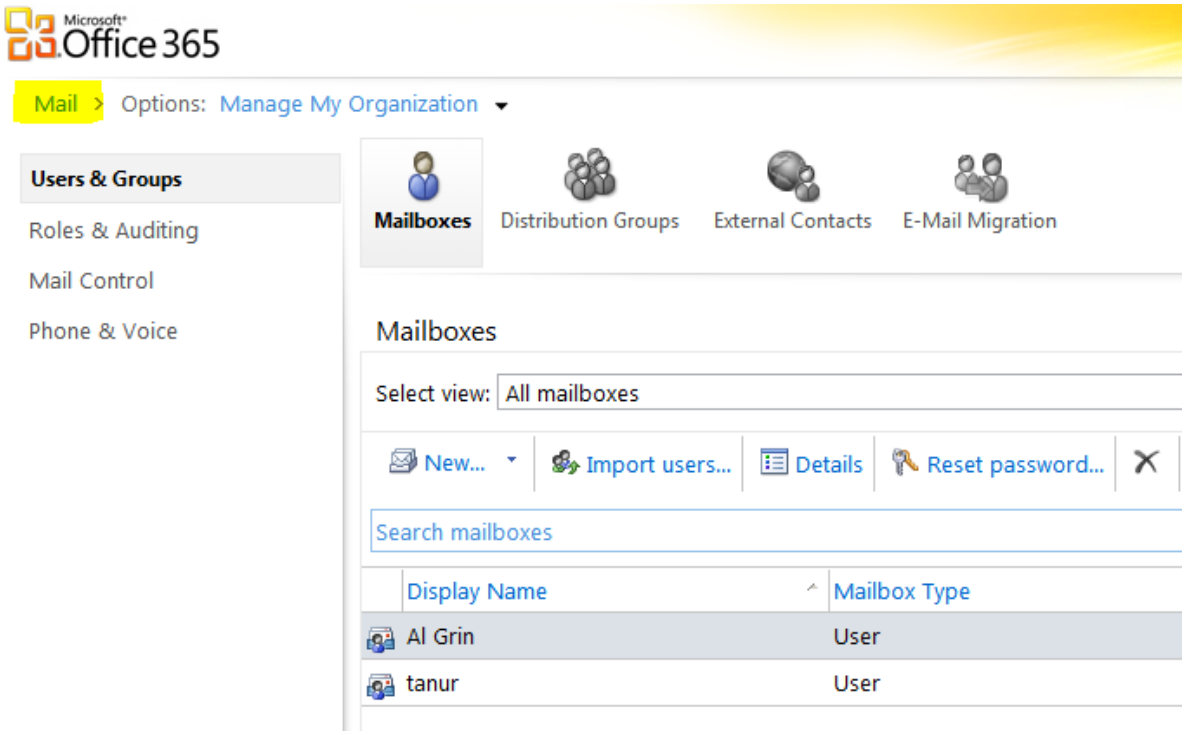
To connect to Office365 Exchange 2010 instance you will need the Exchange URL, administrator username and password.

Here are simple steps to discover the URL:

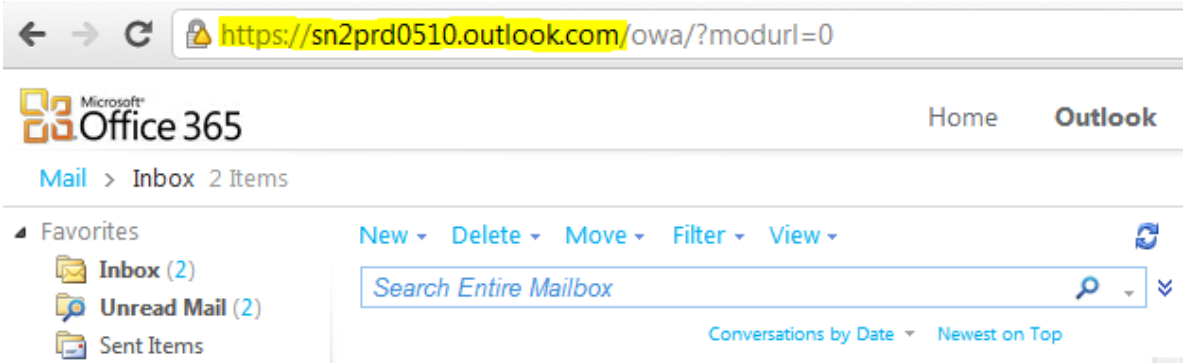
1. Login to Office365 admin interface and click Settings in Outlook section.



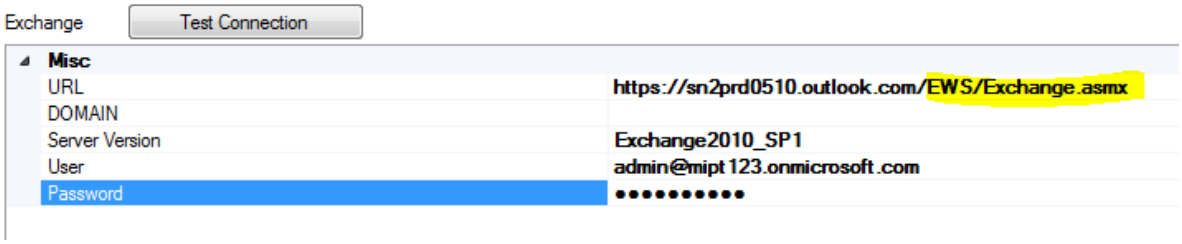
2. On the opened page click Mail link.



3. Admin mailbox will be opened. Notice the Exchange server name in the browser address box.



4. To obtain Exchange URL simply append /EWS/Exchange.asmx to Exchange server name. Then enter values in the synchronization profile wizard.



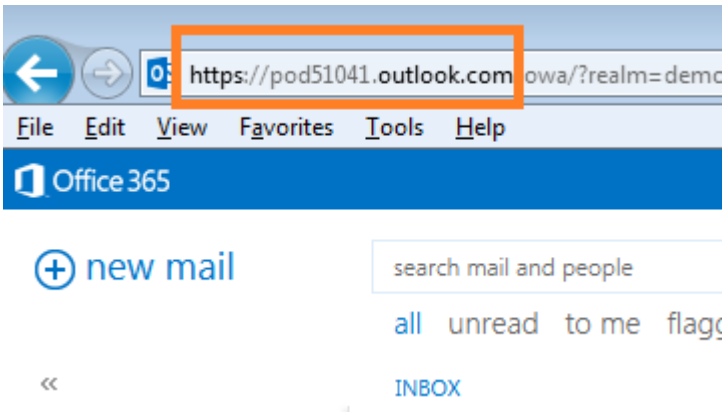
Important note: URL obtained by logging with non-admin user is not valid. E.g. in our case it is *https://bluprd0511.outlook.com*. It is different from *https://sn2prd0510.outlook.com* and is not suitable for connection.

2.1.4 Office 365 2013

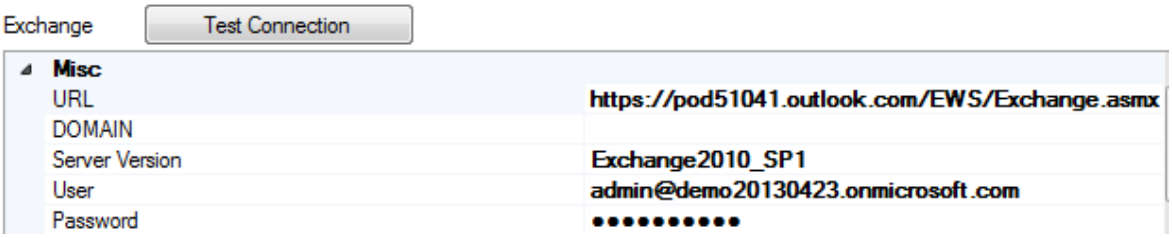
To connect to Office365 Exchange 2013 instance you will need the Exchange URL, administrator username and password.

Here are simple steps to discover the URL:

1. Login to Office365 admin interface at *https://portal.microsoftonline.com* and click Outlook link on the toolbar.



2. To obtain Exchange URL simply append /EWS/Exchange.asmx to Exchange server name (selected on the picture above). Then enter values in the synchronization profile wizard.



2.2 Preparing Salesforce

For Salesforce connection you'll need a number of parameters including URL and user names/passwords.

2.2.1 URL

Domain specific Salesforce URL.

2.2.2 User

Name of the Salesforce user.

2.2.3 Password

Password for the user.

2.2.4 Example: Salesforce connection settings

```
Connection Parameter      Value
-------------------------------------------------------------
URL                     | https://grinmark-dev-ed.my.salesforce.com
User                    | support@grinmark4u.com
Password                | **********
```

2.3 Deployment

2.3.1 Trial Deployment

The Synchronizer software may be installed on any Windows-based machine. For the trial period even one of the client PCs may be used to run the synchronizer. For the production deployment dedicated Windows Server instance is recommended.

2.3.2 Server Deployment

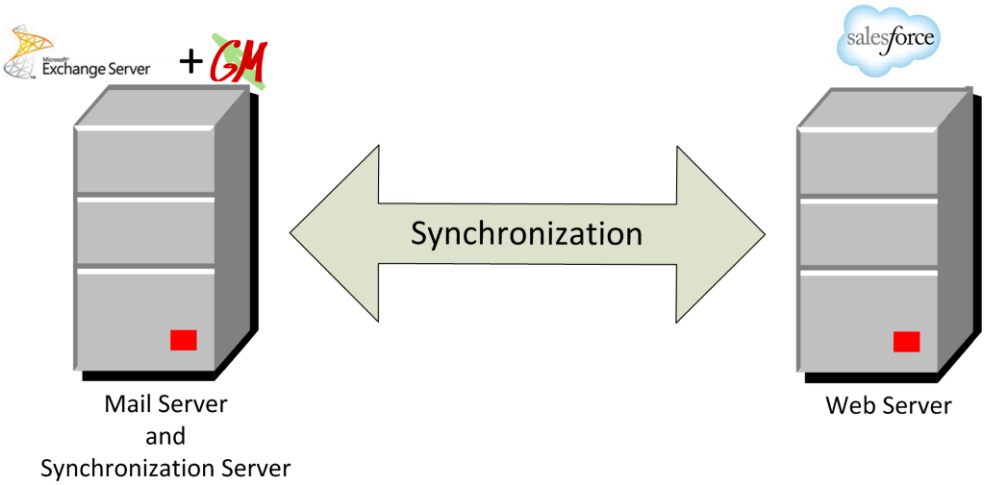
The following deployment configurations are possible:

- **Small Office**
- **Mid-Size Business**
- **Enterprise**

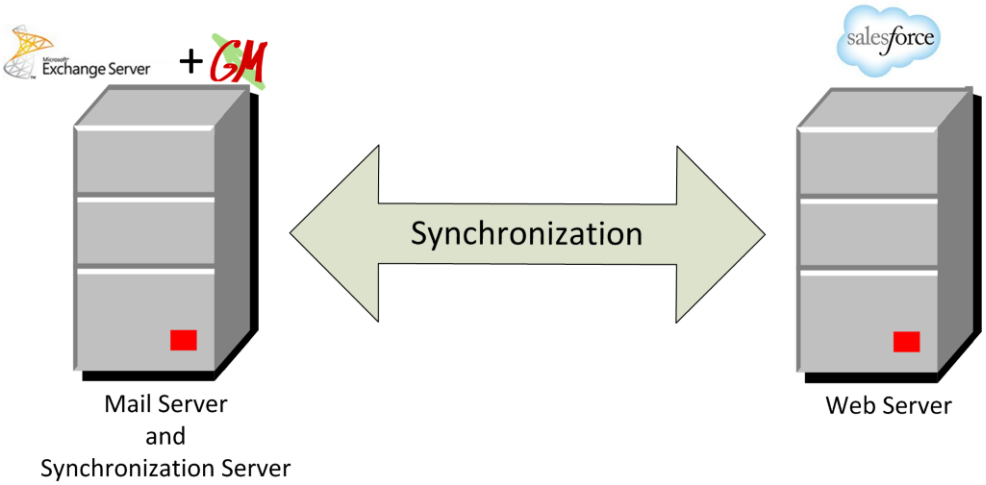
The server load depends on different parameters such as synchronization scenarios, CRM activity, Exchange Activity and synchronization intensity.

Recommended configurations are for situations when you want to have responsive synchronization (all changes are propagated within few seconds) with all Synchronization Scenarios enabled (Contacts, Accounts, Meetings, Calls, Tasks, Cases, Leads are all on). In the case of custom synchronization flow (Only Contacts or Only Meetings one-way) or with reduced synchronization response time (few minutes to synchronize) the server requirements are much lower. It is always possible to start from minimal configuration and then expand the capacity on-demand.

2.3.2.1 Small Office



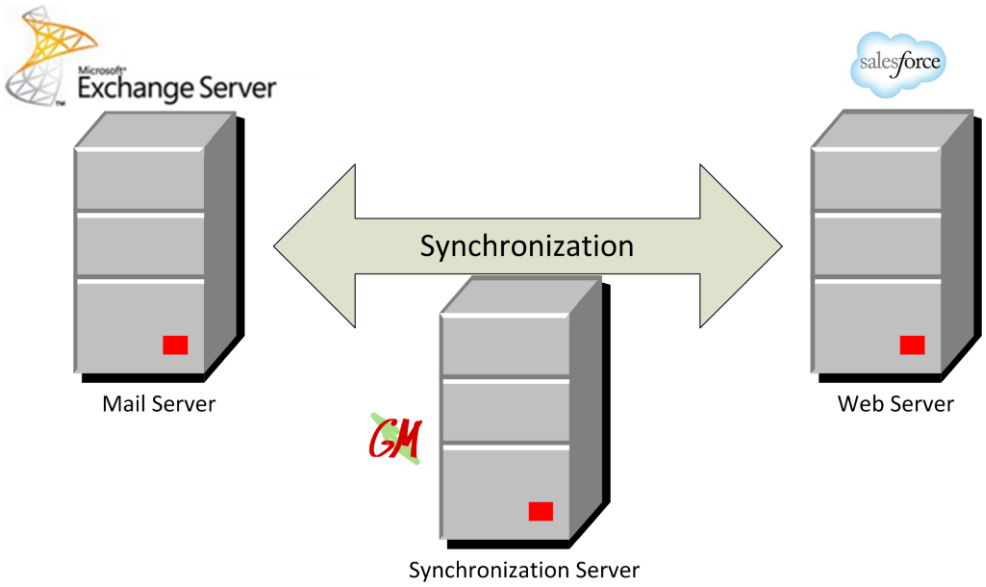
Deployment schema A1: Synchronizer works on the same host with Exchange Server.



Deployment schema A2: Synchronizer works on the same host with Web Server.

Deployment Schema A is for small deployments (up to 15 users). In this case synchronizer may be installed on the same host as Exchange Server or together with CRM Server.

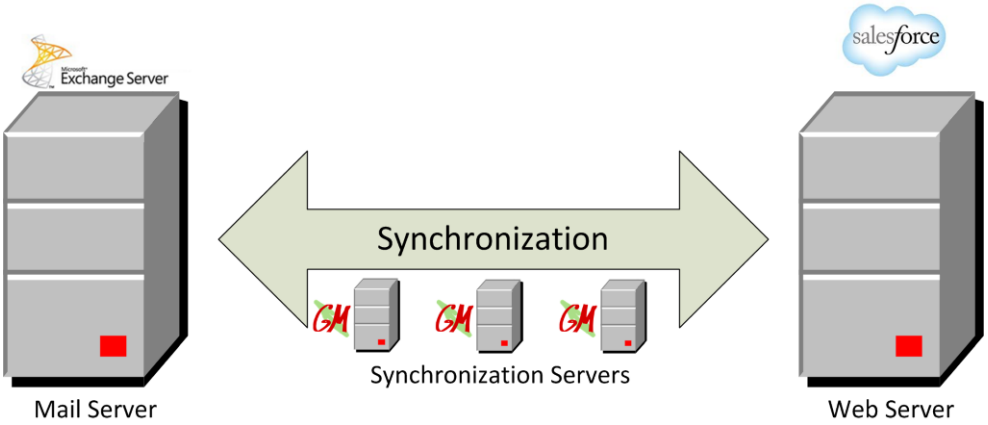
2.3.2.2 Mid-Size Business



Deployment schema B: Synchronizer works at standalone server.

Deployment Schema B is for medium-size deployments (15-50 users). In this case synchronizer requires Windows machine with Windows XP or higher (XP, 2003, 2008, Vista, 7, 8: both Server and Desktop configurations are supported).

2.3.2.3 Enterprise



Deployment Schema C: Multiple synchronization servers for high-load deployments.

Deployment Schema C is for large-scale or high-load deployments. In this case synchronizer may be installed on a number of dedicated synchronization servers. Different deployment options are available. Each synchronization server may be responsible for a group of users or subset of scenarios. This is an advanced configuration and should be designed with help of authorized person.

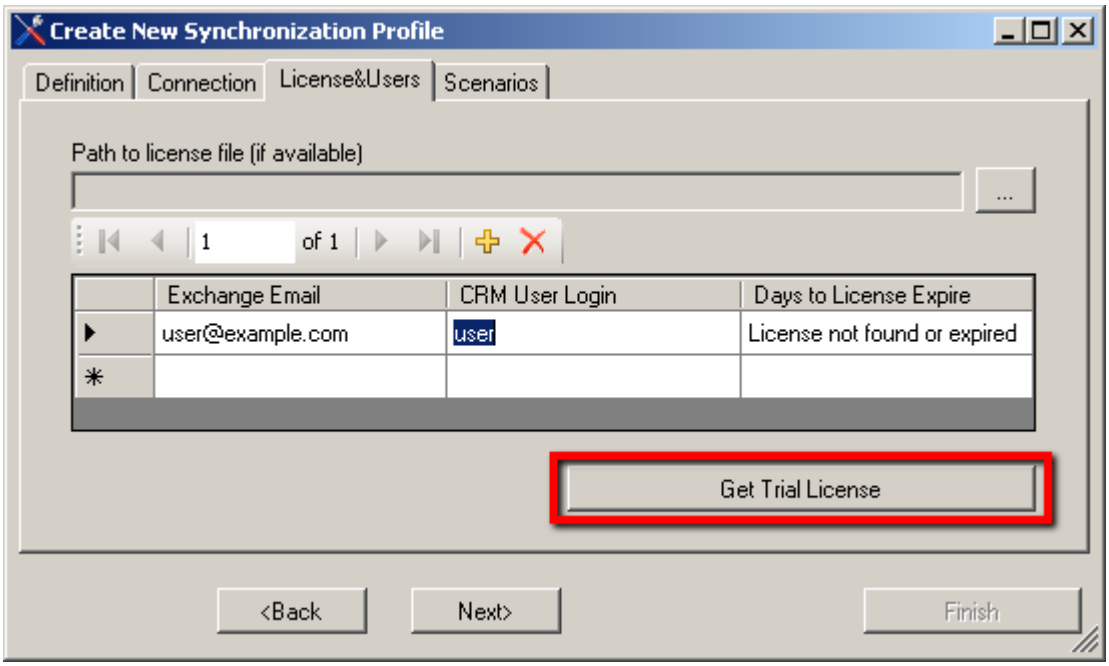
In most cases configurations A and B are sufficient.

2.4 Getting License

License life-cycle looks as follows:

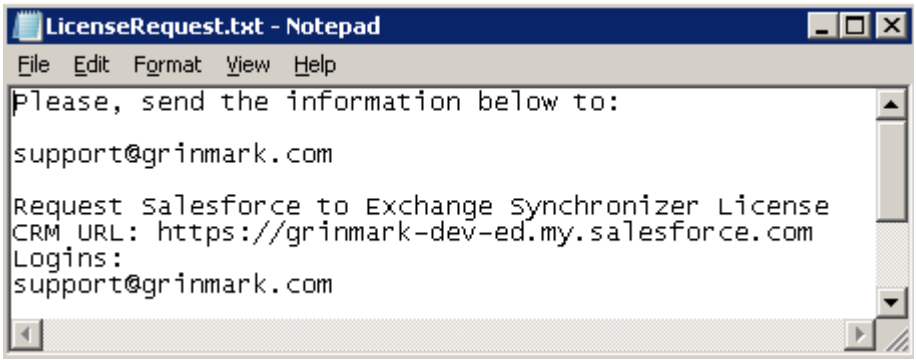
If you are a new user get a trial license first. After a free trial period you can request a new license. When license period is close to expiration you can renew the license.

All types of licenses can be requested from License&Users page of the Synchronization Profile Wizard:



Highlighted button text depends on current license state.

If you are requesting a trial or a new license it is necessary to specify Exchange and CRM user names. Use buttons to add/remove rows in the user table. When you are done with users press “Get License” button. Default text editor will open:



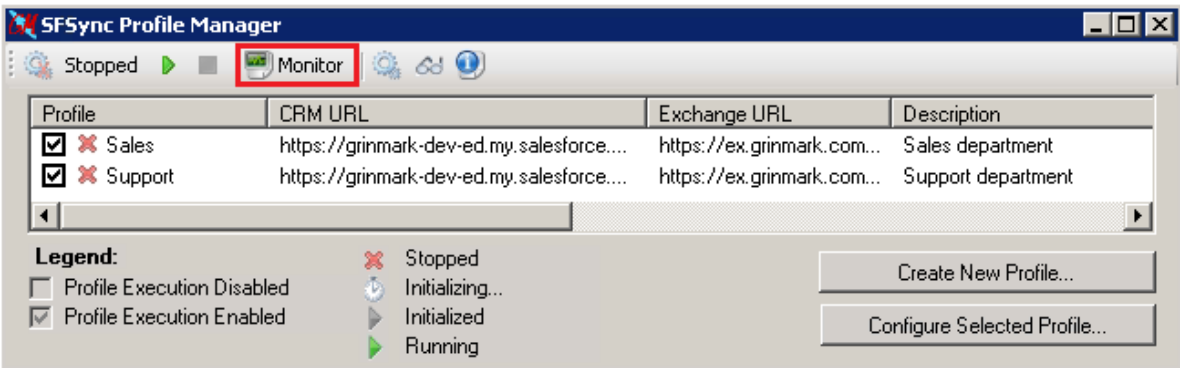
Verify user names and CRM URL. The URL is taken from the Connection page of the Synchronization Profile Wizard. Then send the information to `support@grinmark4u.com`. After a while you’ll

receive the license file. Save it in the file system and specify the path of this file in “Path to license file” field of the License&Users page. License configuration completed.

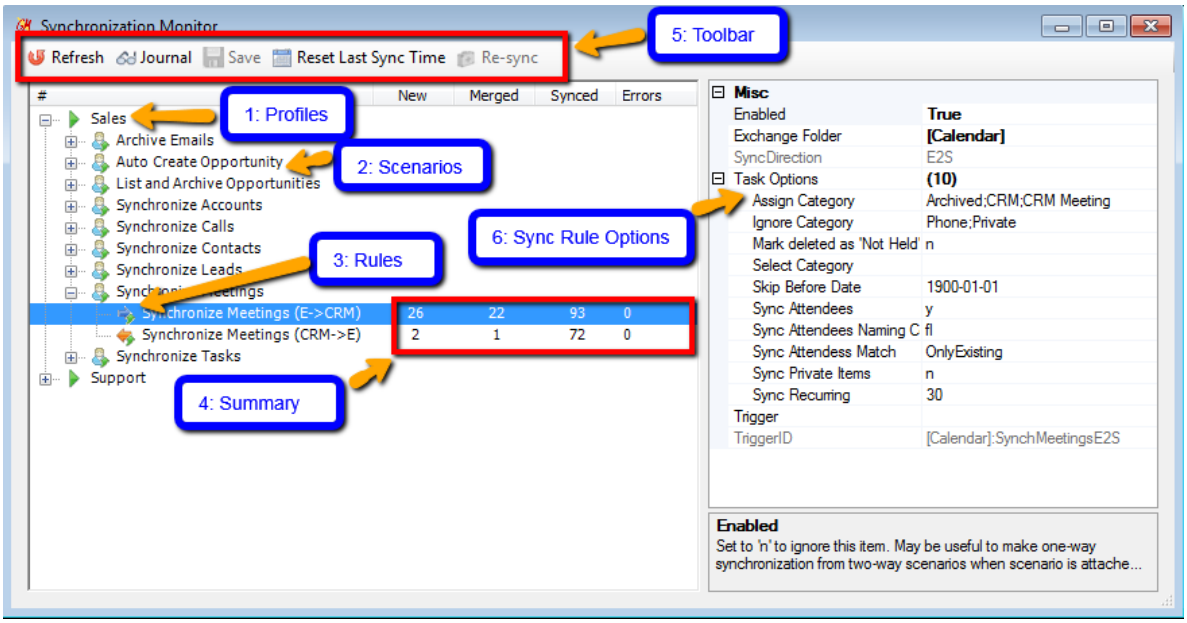
3 Working with Synchronizer

3.1 Synchronization Monitor

Synchronization monitor is accessible through “Monitor” toolbar button:



Synchronization Monitor contains the following widgets:



1. List of available synchronization Profiles
2. List of Scenarios for each profile

3. Synchronization Rules. Usually each scenario contains at least two rules: one for E->CRM (Exchange to CRM sync) and another CRM->E. One may disable a rule by setting Enabled=false to make the scenario “one way”.

4. Synchronization summary for each item within the scenario (new/synchronized/merged/errors). **New** means new item has been detected and corresponding new item has been created. **Merged** means that similar item has been found at destination location and it is assumed to be a pair for source item. **Synced** means item has been changed and its counterpart has been updated correspondingly. **Errors** means that rule encoutered errors while trying to sync or merge some items. Sometimes errors are caused by temporal causes (networking errors, access restrictions, intermediate config issues). In such cases those errors may be recovered by “Re-Sync” toolbar button.

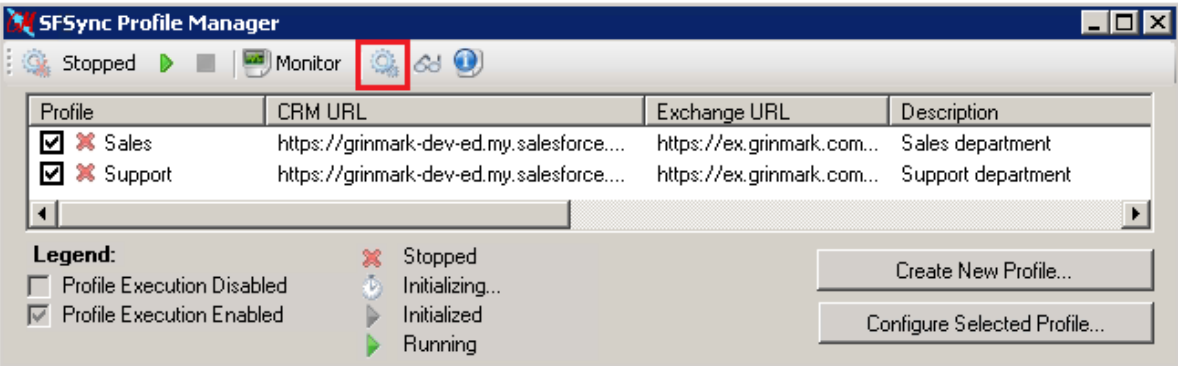
5. Toolbar buttons:

   - **Refresh** the monitor.
   - **Journal** button has different behavior depending on selected item. If an item is a Synchronization Profile then the whole journal for it is displayed. If item is an individual rule within a scenario then list of items created or synchronized for this rule is shown. See section describing “Journal Viewer” for more information.
   - **Save** task options (if any were modified). If sync is now running then options will be re-read after finishing current iteration.
   - **Reset Last Sync Time** for specified sync rule. See description of “Set Last Synchronization Time” dialog.
   - **Re-sync** current rule. This button is only enabled when there are errors. Re-sync forces all items with problems to be synchronized again.

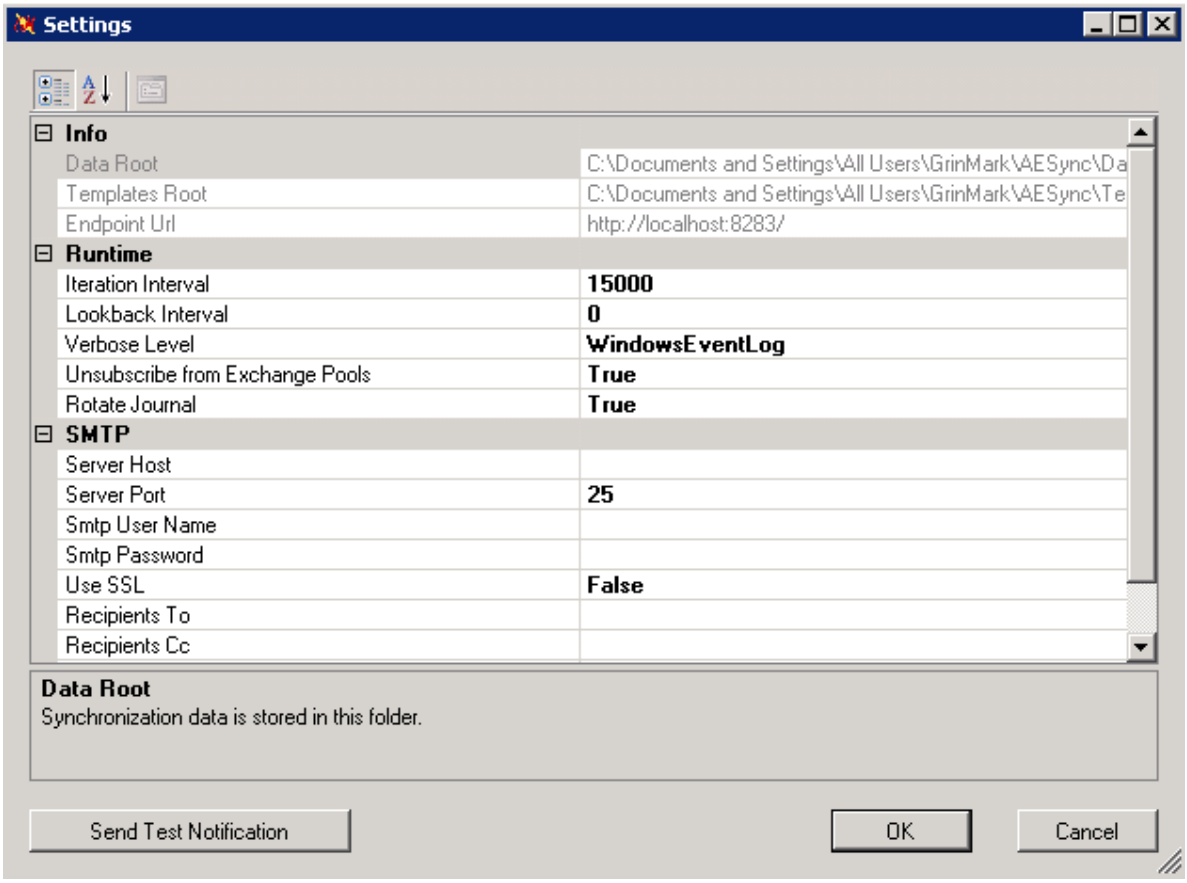
6. Sync Rule Options: view/edit special settings related to the selected rule.

3.2 Global Options

Global options editor may be shown by pressing corresponding toolbar button:



This forces global options editor dialog to appear:



Runtime options

Iteration Interval: time in milliseconds between consequent iterations. During this time Synchronization agent just doing Sleep without any calls to Exchange server or CRM server. Possible values: 1000 – one second, 15000 – 15 seconds (default), 60000 – one minute.

Lookback Interval: Time interval in milliseconds to look back from the last synchronization time when checking modified items. Default: 0. Should only be set when recommended by GrinMark.

Verbosity: From 'Default' to 'Full'. Should be set to 'Default' for production use. Affects log file verbosity. Should only be set when developing custom solution with advanced synchronization logic or when asked by GrinMark.

Unsubscribe from Events: Unsubscribe from Exchange event notifications when synchronization service is stopped. Should be set to 'True' unless you need to disable the synchronizer for a long time period and expect that users may use "Archive To" folders during this period. Default: True.

Exchange Pulling Mode: Exchange event notifications pulling mode: 'Strict', 'Try' or 'Disabled'. 'Strict' is recommended for normal operation. Other modes are recommended if there are errors with server connection. This option may lead to limitations in synchronization. Default: Strict.

Rotate Journal: When set to true, every time Journal size exceeds 10mb, it is archived and compressed and all new entries are saved to a new journal.

Time Zone: Default time zone to use for new Calendar items in Exchange. Default: AESync server's time zone.

3.2.0.1 SMTP

SMTP settings are related to automatic Email notifications. Email notifications inform administrator about various aspects of synchronizer functionality: synchronization and connection errors, usage statistics, license expiration.

Server Host, **Server Port**, **Smtp User Name**, **Smtp Password**, **Use SSL**: Set of options required to send an outgoing email.

Recipients To, **Recipients Cc**: Notification Email recipients (comma-separated lists)

Notification Filter: One or more flags.

- *None*: Disable any notifications.
- *CRM Connection Failed*: Sent when synchronizer is unable to connect CRM
- *Exchange Connection Failed*: Sent when Synchronizer is unable to connect Exchange
- *License Not Found for User*: Sent when one of users has missing, invalid or expired license.
- *Service Started*: Sent when synchronizer service is stopped.
- *Service Stopped*: Sent when synchronizer service is started.
- *Synchronization Error*: Sent when some error occurred during synchronization
- *Daily Summary Letter*: Sends daily usage statistics (per-user synchronization info and license expiration summary).
- *License Expiration Info*: Sends notification 30, 7, 2 and 1 days before license is expired for at least one of users.
- *All*: Enable all the notifications above.

Default: only 'License Expiration Info' notification.

Notification Duplicate Interval: Number of minutes to wait before sending notification message with the same parameters if the reason for a problem is still unresolved.

3.2.0.2 Exchange

Exchange Categories:This group of settings allow control of Master Category List. The synchronizer has uses Exchange categories to mark synchronized and archived items. By default it includes following categories:

- **CRM** (item has a copy in CRM),
- **Archived** (item copied into CRM),
- **Phone** (to distinguish Meeting appointments from Call appointments) etc.

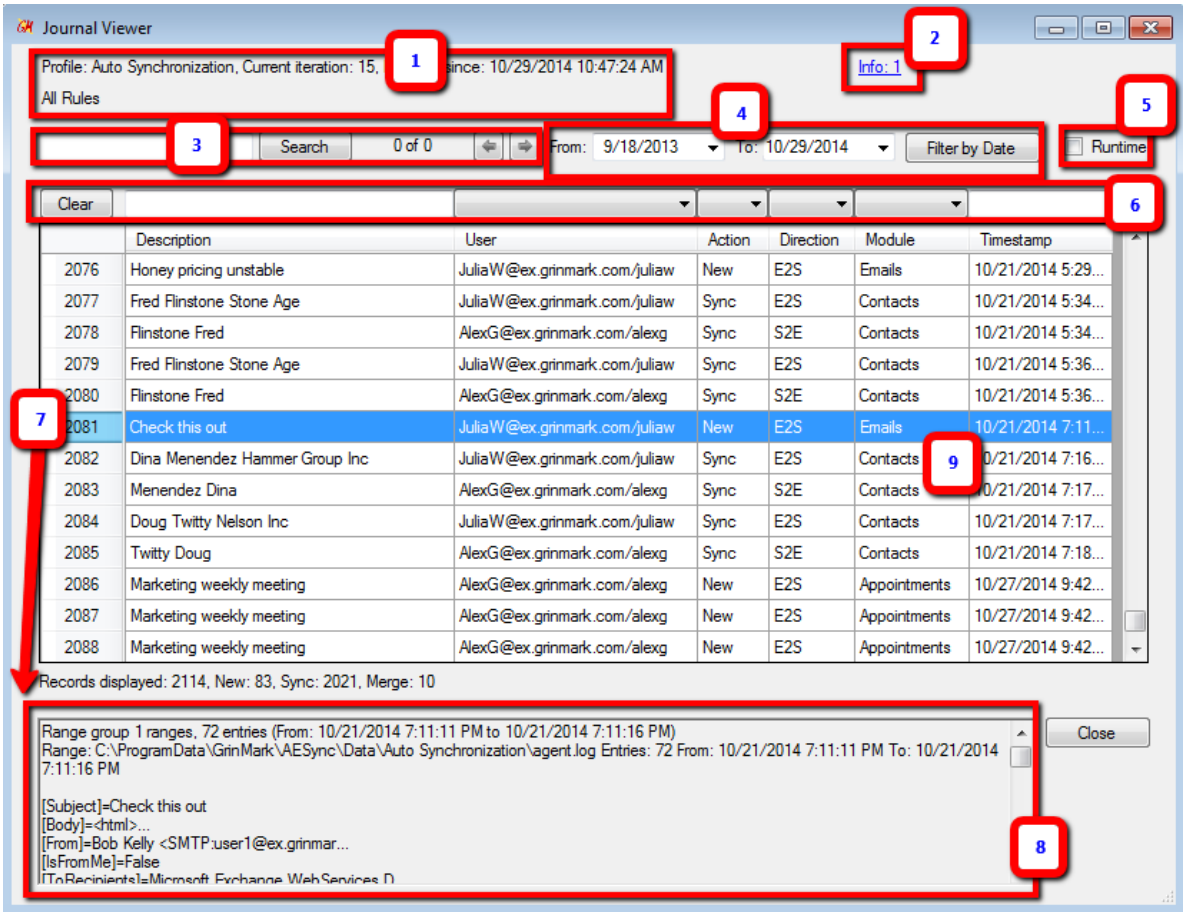
Master Category List allows defining category names and colors in a centralized manner. All modifications of Master Category Lists are controlled only for users specified in the synchronization profiles. Please, note that Categories are defined for each synchronization rule separately. If you want some rule to have custom category (say, “Lead” instead of “CRM Lead”), you need to set “Assign Category” option for “Synchronize Leads (CRM->E)” in the Synchronization Monitor. And if you want to define and deploy a color for this category then it should be specified separately in Global Options dialog to be deployed.

- *Deploy Categories*: Category deployment is performed during service startup according to the following options:
  - *None*: Don’t deploy (default).
  - *New*: deploy only new categories. If user has some category already defined then it is not deployed. Otherwise it is deployed.
  - *All*: always deploy all categories defined in this dialog. This option is needed if you want to force all users to have same color settings for each of specified categories.
- *Category Names*: collection of category definitions. Each category defined by its Name, Color and keyboard Shortcut.

Categories are deployed on per-user basis every time synchronizer is started. So it only affects Exchange users configured in any of the the Synchronization Profiles and does not affect others.

3.3 Journal Viewer

Journal viewer provides information about synchronization flow and results.



1. Status section displays information selected synchronization profile and rule.
2. Information section (click to see warnings and errors from current execution).
3. Keyword filter. Type any keyword to have them highlighted in the journal view.
4. Date filter controls range of dates to filter journal events by timestamp.
5. Runtime shows information about items being synchronized in the real time. The list is populated automatically and scrolled to most recent item every time something is updated in the journal.
6. Column based filters, to show only rows with specific values of column cells. I.e. it is possible to filter only entries for single user. And/or entries with one direction, etc.
7. Row selector, forcing the log data related to specific row appear in the bottom (log view).
8. Log view. If one or more rows are selected in #7 the Row View will show log file related to these journal entries.

9. Journal row data. Each entry corresponds to a single synchronization step. Column data contains the following information:

    - Description: name or subject of the synchronized entry.
    - User: The user being synchronized in the form <user email>/<CRM login>.
    - Action: One of: New, Sync, Merge. New: new entry created in destination system based on the corresponding entry in the source system. Sync: destination entry already exists, but has been updated. Merge: matching destination entry has been detected and updated according to the source entry.
    - Direction: S2E – CRM to Exchange, E2S – Exchange to CRM.
    - Module: type of synchronized item.
    - Timestamp: time when synchronization happened.

3.4 Modifying Synchronization Scenarios

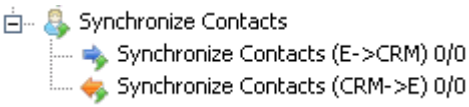
Synchronization Monitor may be used to modify properties controlling the behavior of synchronization scenarios:

1. One-way vs. Two-way synchronization
2. Exchange Items Selection Criteria (Categories)
3. CRM Selection Filters
4. Exchange Folders
5. Other: Item merge, automatic email archiving, automatic Account creation, etc.

Note: Changing default synchronization scenarios should be done with care. It is always recommended to try modified behavior with small number of users before applying to larger installation.

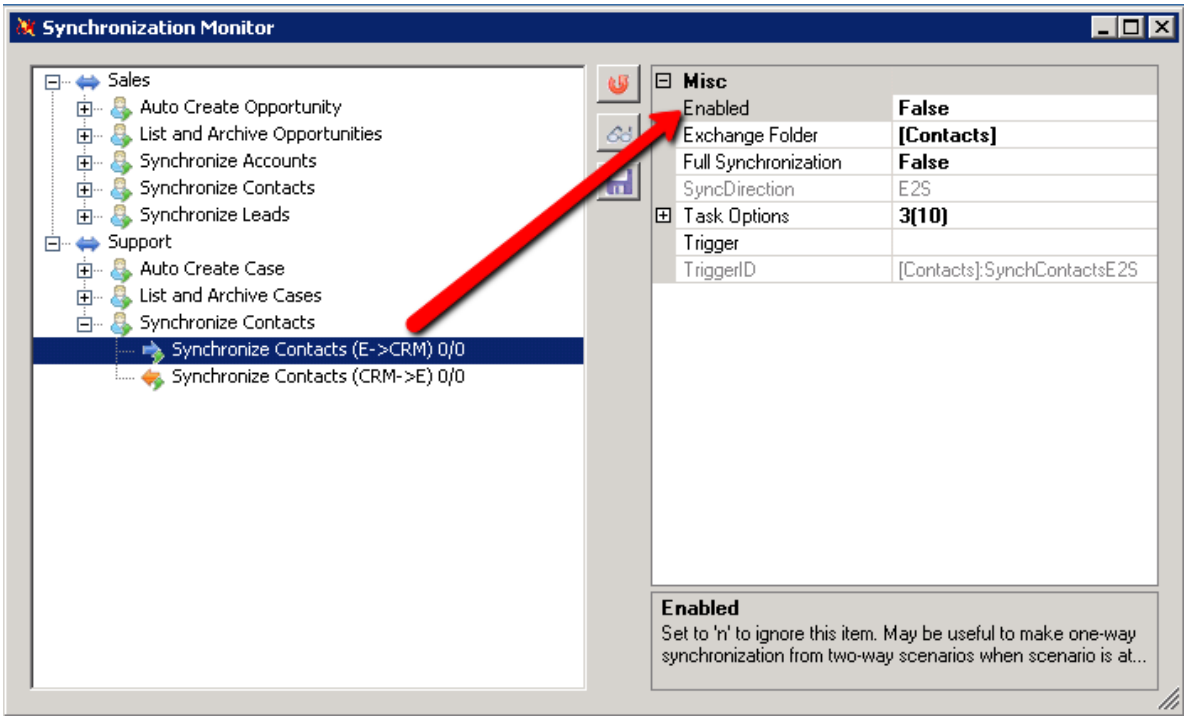
Making One-way Synchronization

By default synchronization scenarios named as “Synchronize …” are two-way. Such scenarios contain two synchronization rules:

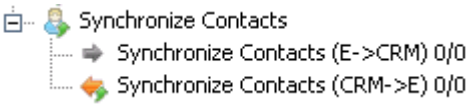


First, data is copied from Exchange to CRM (E->CRM). Then it is copied from CRM to Exchange (CRM->E).

In some cases one-way sync is not enough. For example, “Support” department may need access to CRM Contacts but should not create new contacts in CRM. To achieve this goal we disable E->CRM branch by setting “Enabled” for corresponding synchronization rule to “False”:



After “Enabled” is set to false and configuration is saved ( ) the disabled rule is displayed with greyed icon:



And given synchronization scenario becomes one-way.

3.4.1 Exchange Categories

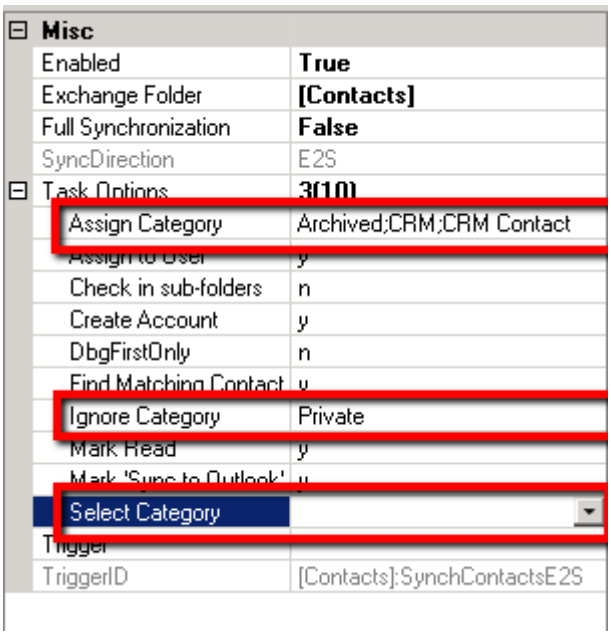
Categories are a powerful mechanism for controlling the synchronization logic. The effect of categories depends on the synchronization direction.

3.4.1.1 Exchange -> CRM

Assign Category: “;”-separated list of categories to assign to each synchronized item.

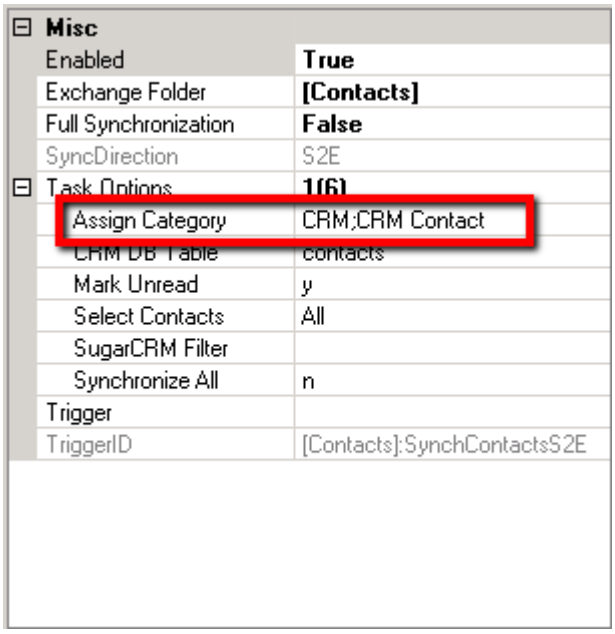
Select Category: “;”-separated list of categories. Only items belonging to one of these categories are visible to the Synchronizer. If “Select Category” is empty, all items are selected.

Ignore Category: “;”-separated list of categories. Items belonging to any of these categories are invisible for synchronizer (ignored). If “Ignore Category” is empty, all items are selected.



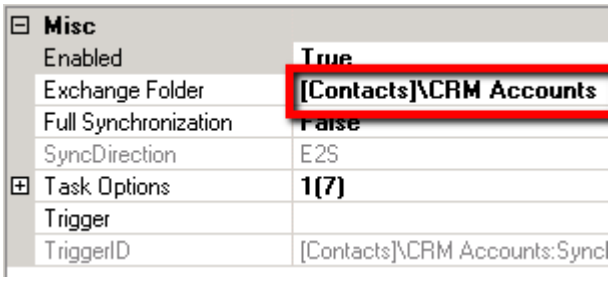
3.4.1.2 CRM -> Exchange

Assign Category: “;”-separated list of categories to assign to each synchronized or created item.



Exchange Folders

Each synchronization rule works in certain Exchange folder.



Default folder for a rule may be changed by editing "**Exchange Folder**" property. The folder is defined by "\"-separated path, i.e.

Folder1\Folder2\Folder3

For example: **CRM\Opportunities\Archive To**

"Folder1" is either folder name, or locale-neutral "well known mailbox folder" placeholder, i.e. one of:

[Contacts], [Calendar], [Tasks], [Inbox], [SentItems]

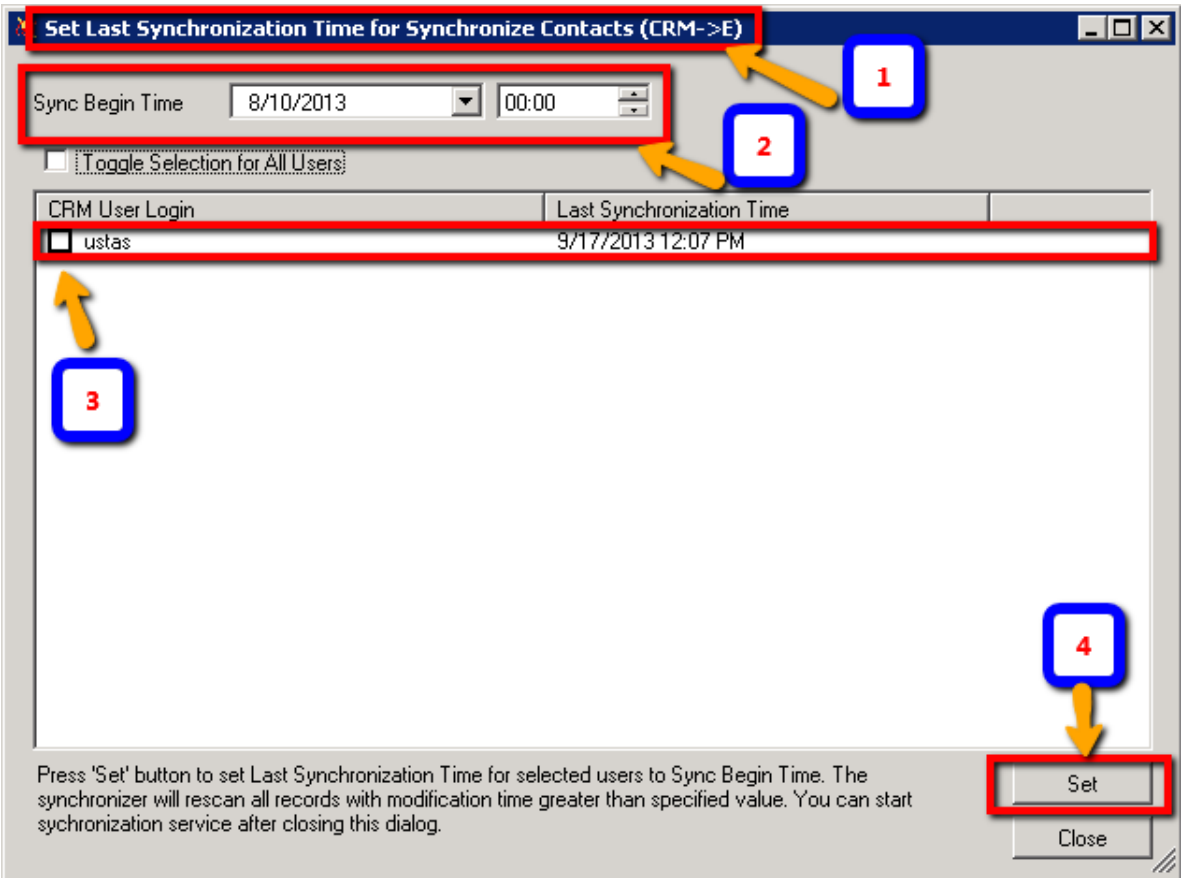
For example, [Contacts] is resolved to "Contacts" in English version of Outlook, "Kontakte" in German version, "Контакты" in Russian version and so on.

Note: if you want to change the folder for the whole synchronization rule, then you need to change it twice: for (E->CRM) rule and for (CRM->E) rule.

Note: synchronization history depends on the folder. Changing folder in production environment may lead to side effects (loose of history and appearance of duplicates) so this should be done with care.

3.4.2 Updating Last Synchronization Time

Last synchronization time is the beginning of the synchronization period. If some item is older than "Sync Begin Time" then synchronizer ignores it. The word "older" here addresses to data entry creation or modification time. For example, if an entry represents a person with birthday in 1895 which has been entered into the electronic address book in 2005, then its creation time is in 2005. By default last synchronization time is set to 1900 to fit all possible data entries.



1. Name of synchronization rule. Last Synchronization Time (LST) may be updated per-rule. I.e. Exchange->CRM may be set to use one LST (say, only one year old items) while CRM->Exchange may have another (say, one month).

2. New synchronization interval start

3. List of users. Those users that should get new LST should be checked.

4. Set to update LST for checked users to a new value specified in #2.

4 Getting Started with Sample Configuration

4.0.1 Creating Synchronization Profiles

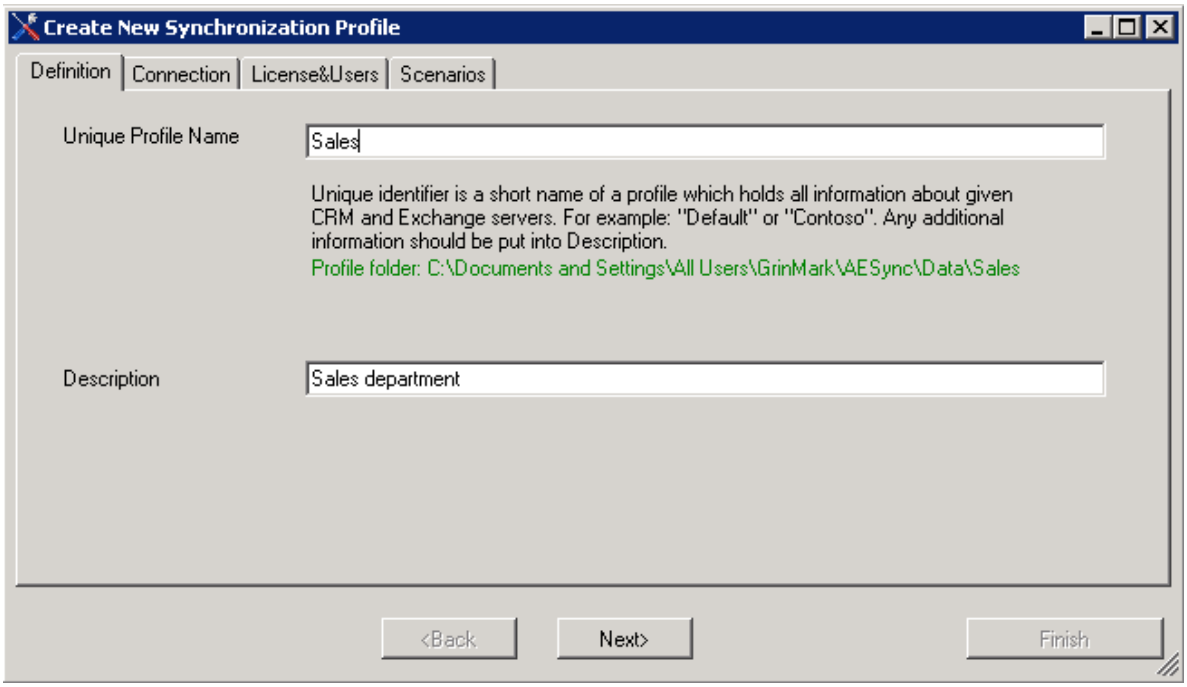
The synchronizer may run one or more synchronization profiles in parallel. Each synchronization profile is responsible for specific synchronization activities (scenarios).

For example we have two groups of users:

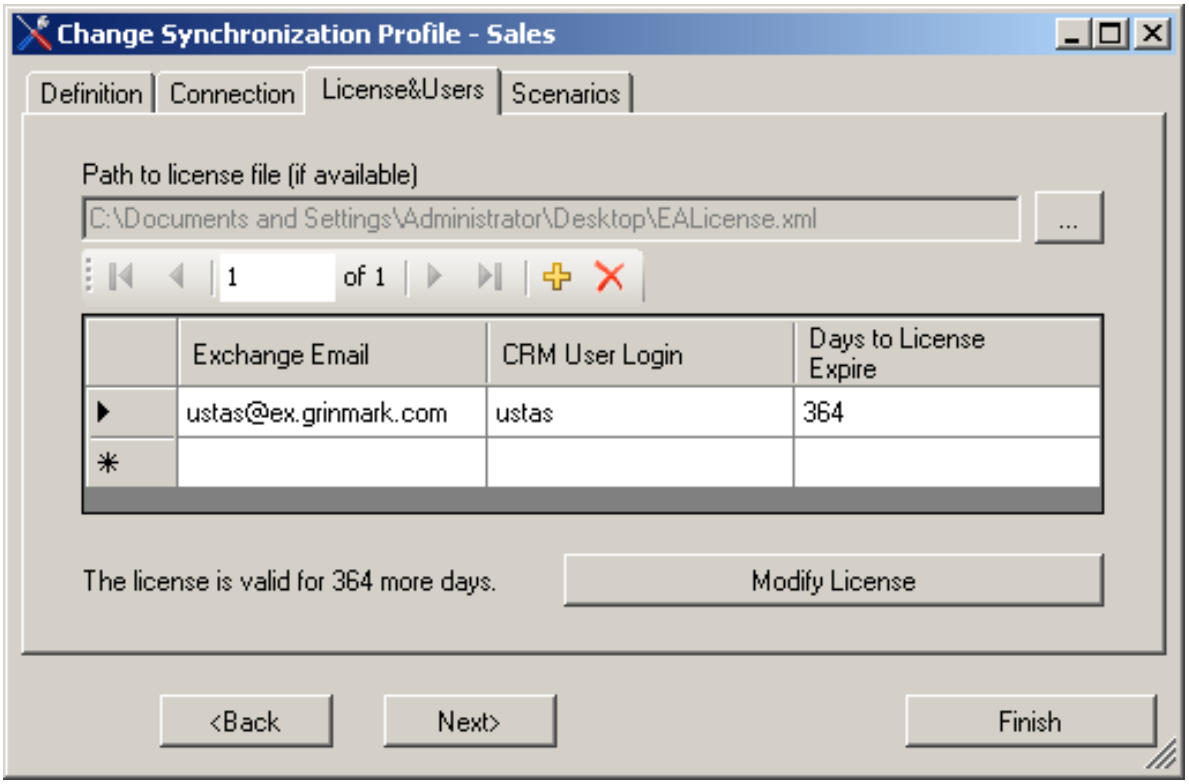
1. “ustas” working in Sales department. These users need to have Contacts, Accounts, Leads and Opportunities synchronized.
2. Also we have “alex” working in Support department. Support needs access to Contacts and Cases only.

In this case we need to define two synchronization profiles. We will give unique profile names “Sales” and “Support”.

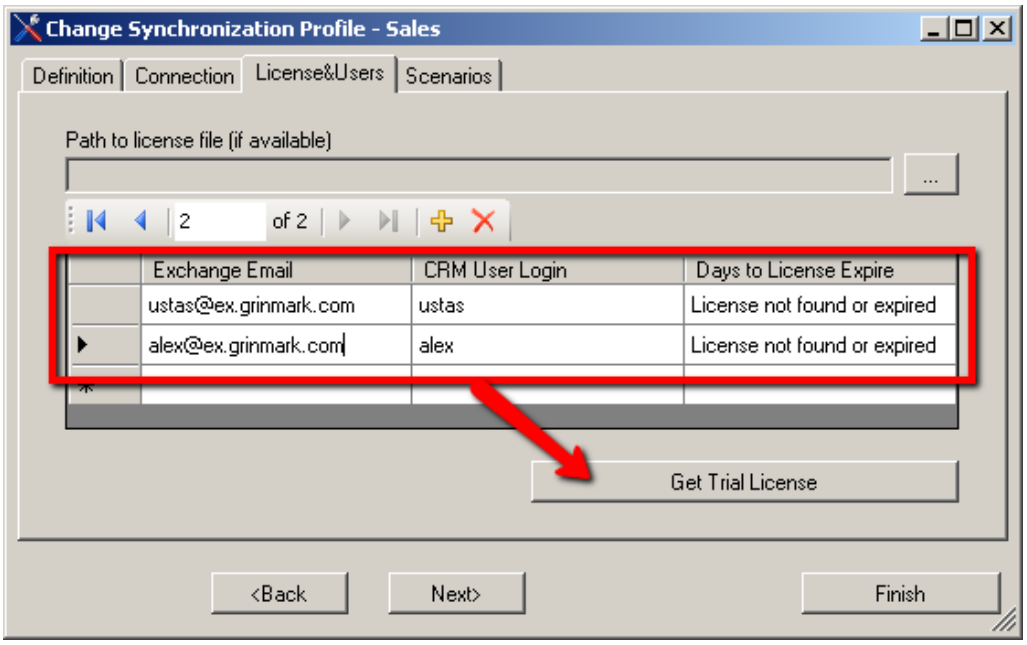
We create “Sales” profile:



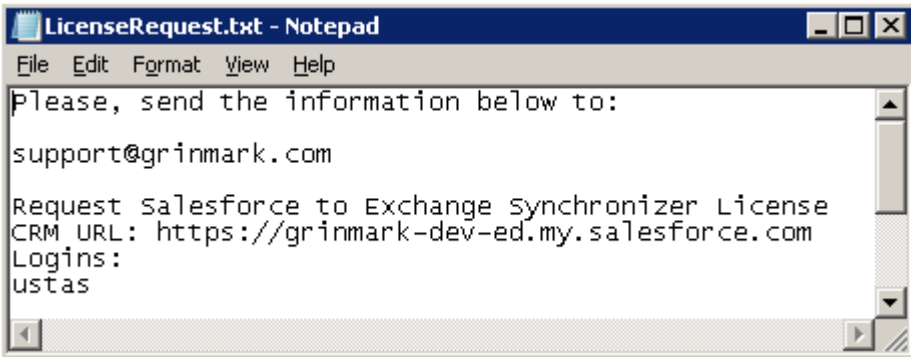
In real life each group contains many users. In this simple example the sales includes only one user “ustas”:



Note: In this case the license is already available for “ustas” and “alex” users. Otherwise the recommended step is to first fill information about users and then press “Get Trial License”:

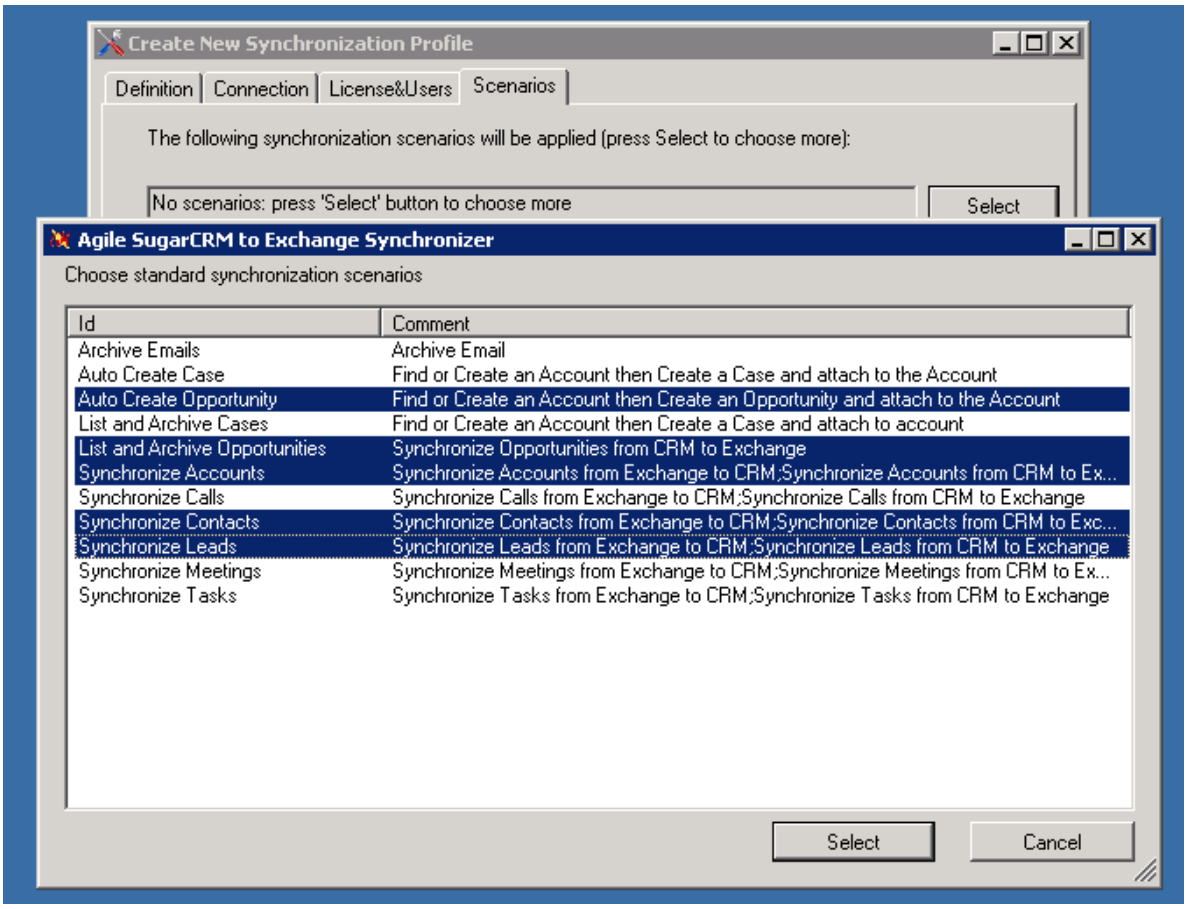


It is possible to get trial license for 7 days before making final decision about purchase. The screen appears showing information that should be sent to specified email address from your own email.

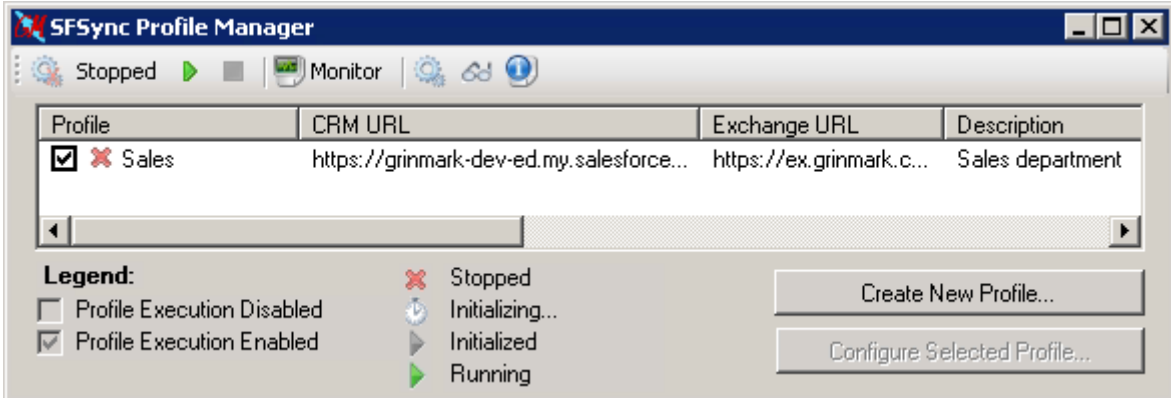


Your information will be proccessed and the trial license (EALicense.xml) will be sent to you.

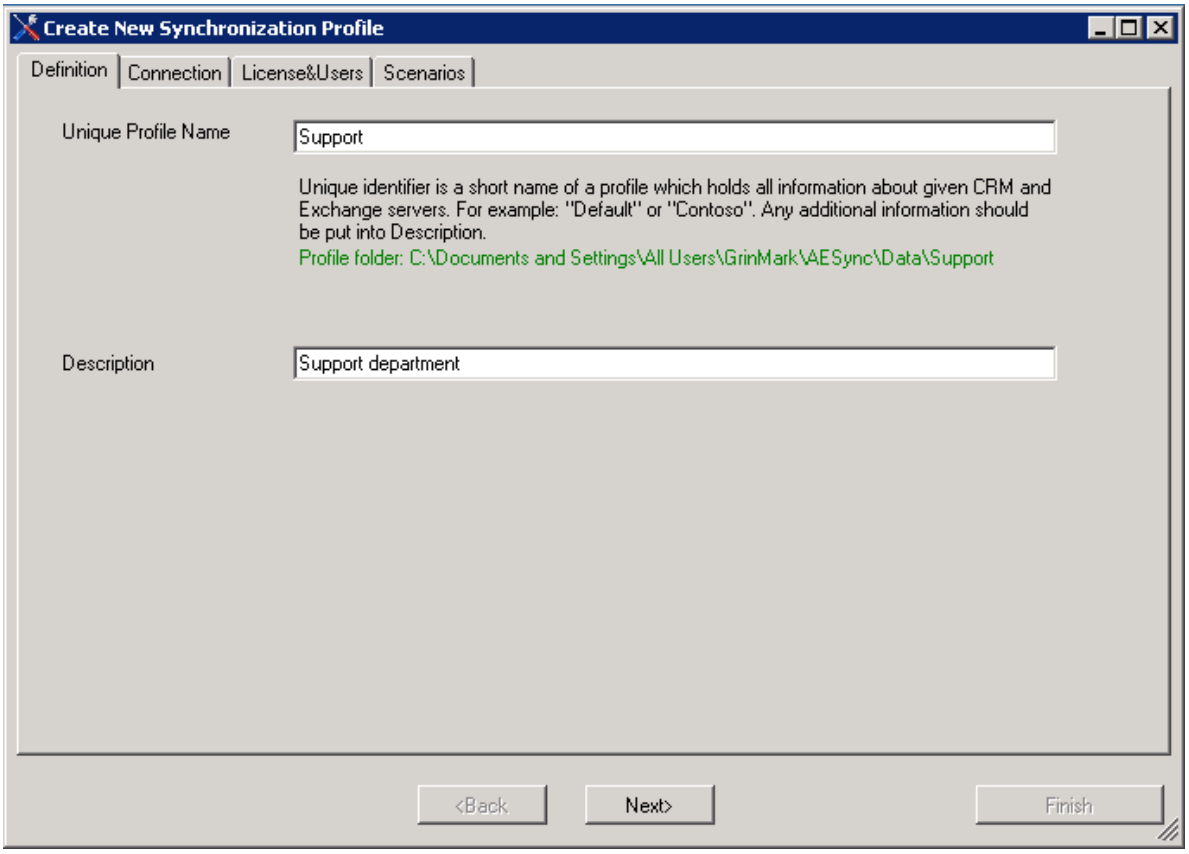
Now we select scenarios specific to this profile (Pressing Ctrl key allows selecting multiple scenarios):



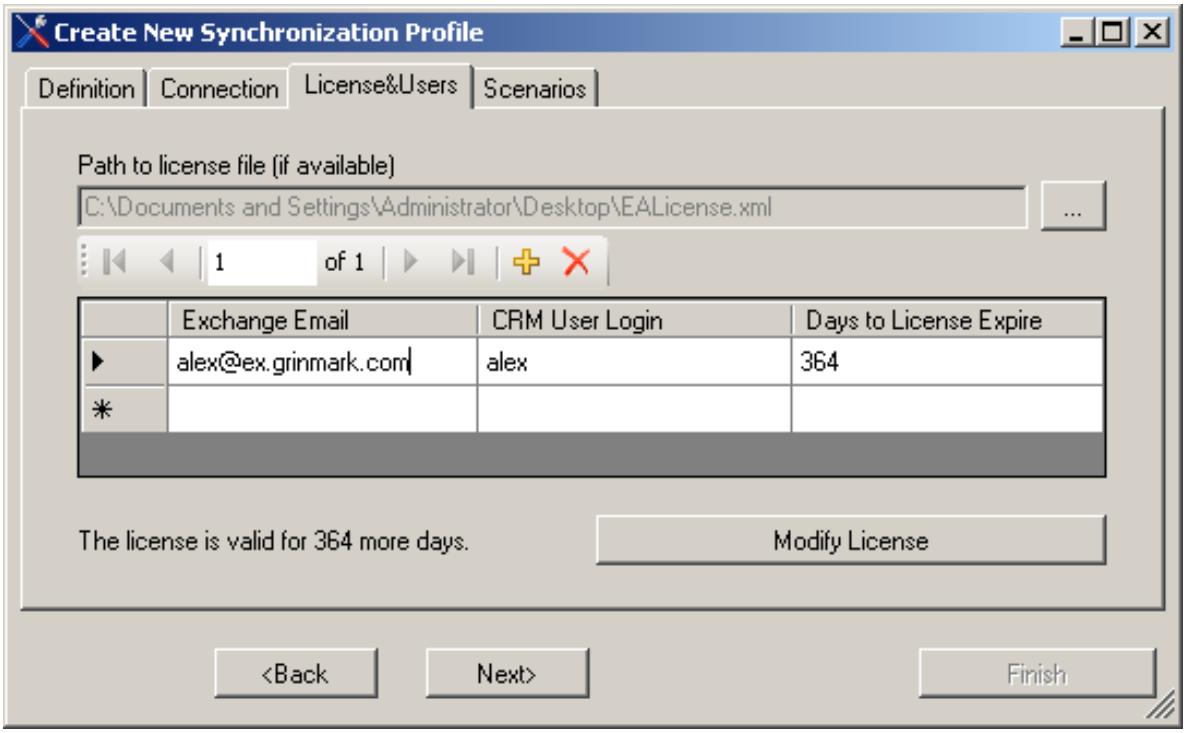
Ok, we have “Sales” profile created and running.



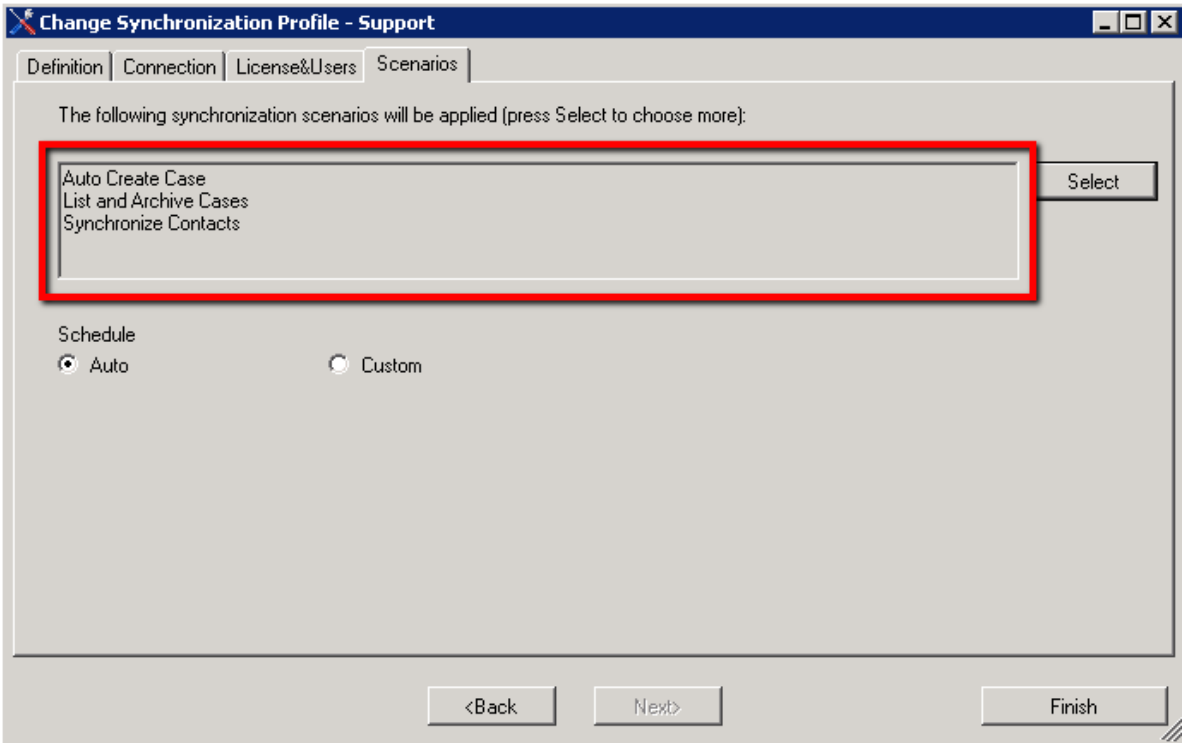
Finally we use “Create new Profile” to add “Support”-specific synchronization options.



Adding user “alex”:

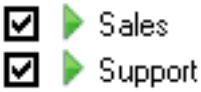


And adding support-specific scenarios:



After closing Sychronization Profile Wizard It takes some time for a new configuration to initialize. The configuration is displayed as grayed:

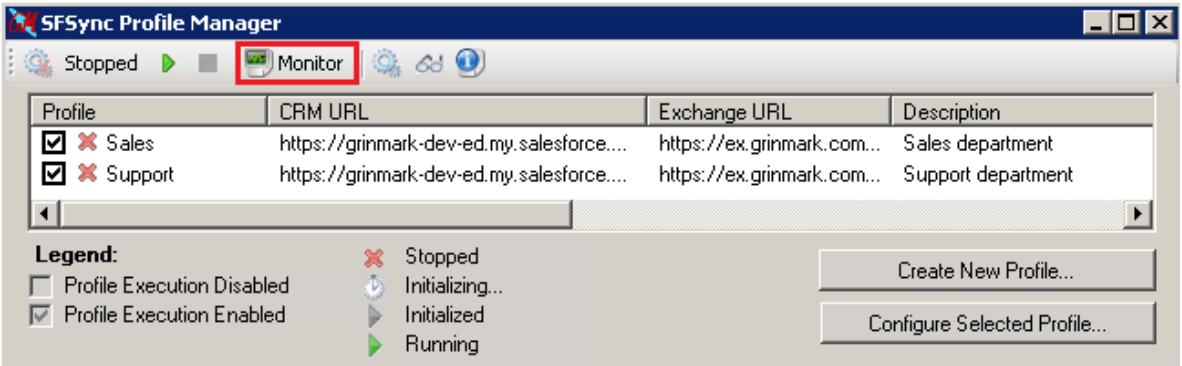
And in a moment it becomes green:



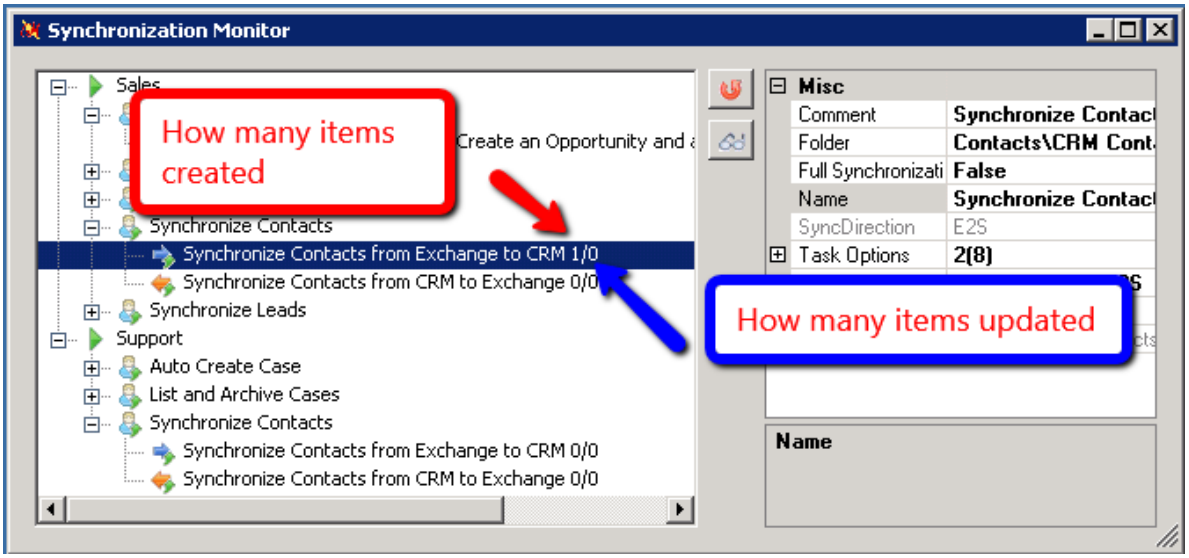
From this point both profiles are running.

4.0.2 Monitoring Activity

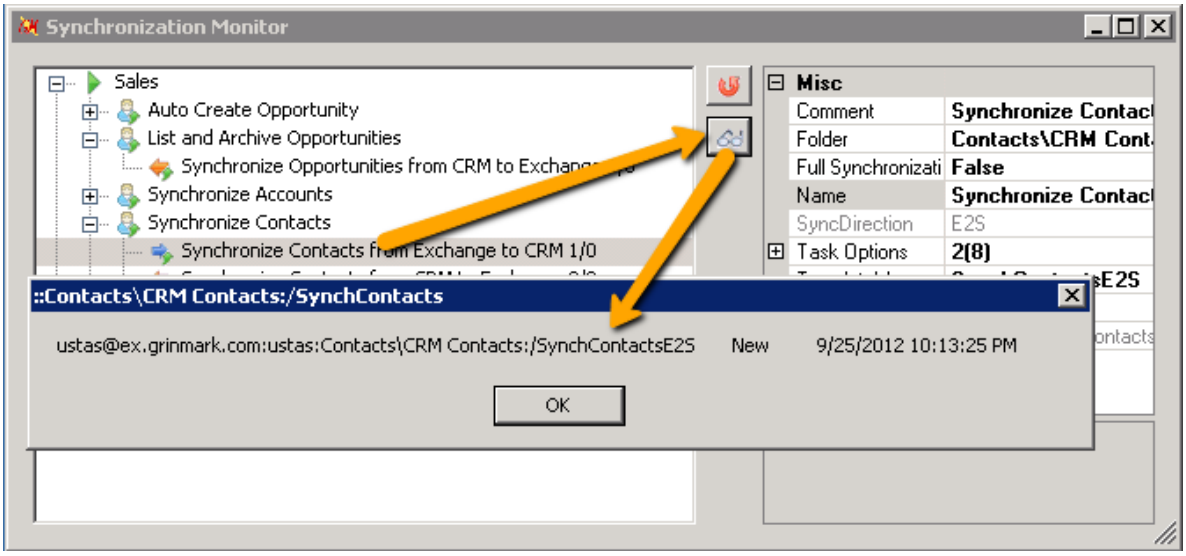
Synchronizer activity may be reviewed by pressing “Monitor”



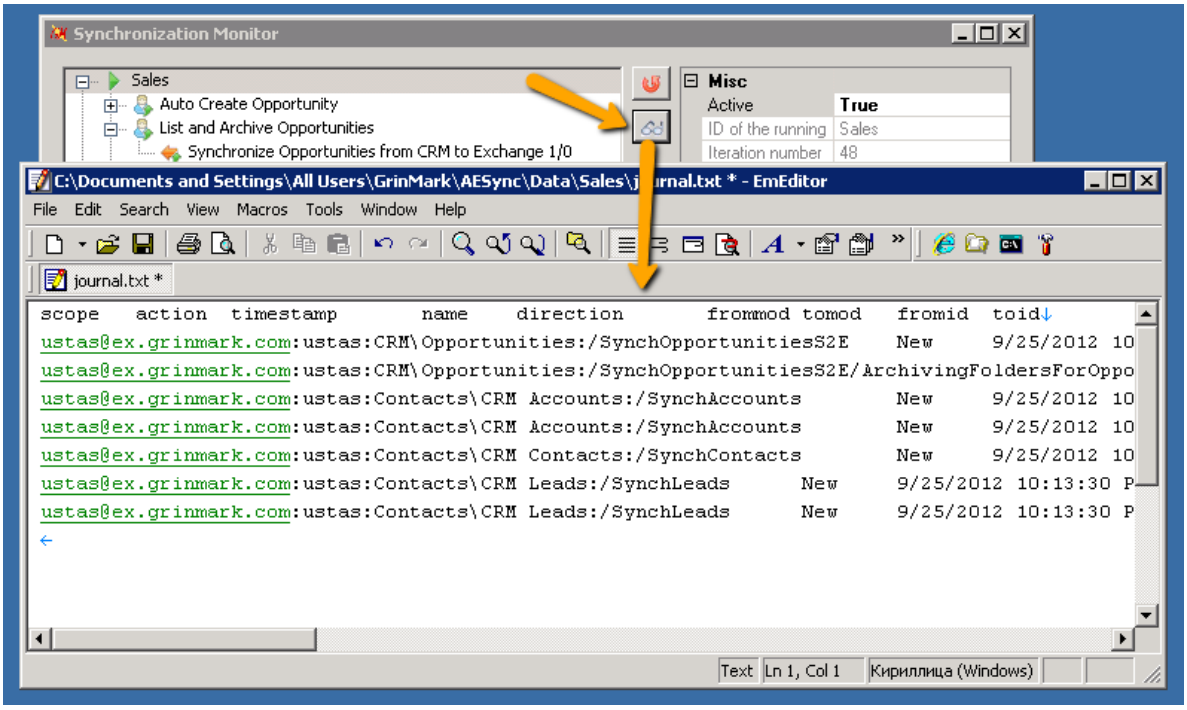
The monitor screen displays detailed information about each synchronization scenario with breakdown on how many items were created or updated by particular synchronization step:



By pressing the Log button brings detailed information of individual synchronized items:



Doing the same for the whole profile brings the combined profile synchronization journal:


Synchronization Monitor
Sales
Auto Create Opportunity
List and Archive Opportunities
Synchronize Opportunities from CRM to Exchange 1/0
Misc
Active
True
ID of the running
Sales
Iteration number
48
C:\Documents and Settings\All Users\GrinMark\AESync\Data\Sales\journal.txt * - EmEditor
File Edit Search View Macros Tools Window Help
journal.txt *
scope action timestamp name direction frommod tomod fromid toid
ustas@ex.grinmark.com:ustas:CRM\Opportunities:/SynchOpportunitiesS2E New 9/25/2012 10
ustas@ex.grinmark.com:ustas:CRM\Opportunities:/SynchOpportunitiesS2E/ArchivingFoldersForOppo
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ustas@ex.grinmark.com:ustas:Contacts\CRM Leads:/SynchLeads New 9/25/2012 10:13:30 P
Text
Ln 1, Col 1
Кириллица (Windows)