# OnTime

## Group Calendar
## for HCL Domino

### Installation and Configuration Manual

**OnTime® Group Calendar Microsoft Exchange addendum Version 11.2.x**

Intra>ision

## Trademarks

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# OnTime® Group Calendar

## Installation Manual

*The main audience for this manual is Notes/Domino Administrators and users who have experience in administrating Notes databases. It is expected that the reader of this manual is no stranger to the Domino environment and know how to configure server documents using the Domino, Administrator client.*

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## Microsoft® Exchange® features in OnTime® Group Calendar

New functionality has been added to provide synchronisation of calendar entries from Microsoft® Exchange®, both on-premises and Microsoft® Offices 365®. The solution is primarily for customers who have HCL Domino® users that is migrated to Microsoft® Exchange®. The solution may also be used for new Microsoft® Exchange® users, but one of the basic requirements is, that the user **is** in the HCL Domino® Directory with the same primary email address as in Microsoft® Exchange®.

Requirements

- Basic authentication must be enabled for Exchange Web Services. OAuth authentication is supported for Cloud Exchange.
- All users synchronised from Microsoft® Exchange® environments must be present in the HCL Domino® Directory with the same primary email address and forwarding address.
- The synchronisation of Persons, Rooms, and Resources/Equipment is configured from groups. These groups must have an email address in Exchange/Office 365. Hidden groups and "Office 365 Group" are not supported.
- All login credentials verification is done by the HCL Domino® server, so password management is done using HCL Domino®. The authentication configured must be session-based (form-based). Make sure to have proper license in HCL Domino® for any none HCL Domino® users created in HCL Domino® to provide web access.
- Microsoft® Exchange® servers are configured to provide the Microsoft® Exchange® Web Service interface, accessible from the HCL Domino® server.
- An Impersonation user, used solely for OnTime® Group Calendar, is created for each Microsoft® Exchange® server configured, and the password is stored in the configuration database (encoded, not human-readable).
- The impersonation user must have a mailbox - minimum type 1 in Office 365. Assign the user the role "ApplicationImpersonation".
- As Microsoft® Exchange® servers do throttling per Impersonation user, an impersonation user in common with another application is not supported.
- Microsoft® Exchange® server, on-premises or Microsoft® Office365®, must be able to make http/https requests to the Domino® server running the system.
  The Domino server must be running at least TLS 1.2 to securely communicate with Exchange in Office365®
  Firewall roles need to be opened for http (port 80) or https (port 443) between the server running OnTime® Group Calendar and Microsoft® Exchange® server(s) – bidirectional.
  For outgoing access to Office 365 please allow the following Microsoft servers
  https://outlook.office365.com
  https://login.microsoftonline.com
  https://graph.microsoft.com

- The UFT feature (Universal Free Time) enables HCL Notes, iNotes, Verse clients to see other users Free Time for both Domino and Exchange users.

Limitations

The limitations are where Microsoft® Exchange® mail users are limited compared to HCL Domino® mail users

- The user can create, edit, delete personal calendar entries but not for other users in the Microsoft® Exchange® environment. A Microsoft® Exchange® user, therefore, cannot be an Editor in the role assignment.
- No support for Microsoft® Exchange® users permissions profile (ACL in Domino®)
- Microsoft® Outlook® options in 'Show as' is translated to only "Busy"/"Free".
- A member of a meeting is visible as their Microsoft® Exchange® display name only, in the clients - not their email and/or configured Display name in OnTime® Group Calendar.
- Users membership to groups shown in OnTime is by HCL Domino® names, and any Dynamic assignments are from HCL Domino® databases.
- A Microsoft® Exchange® user cannot create a poll in 'OnTime Pollarity'.

## Architecture
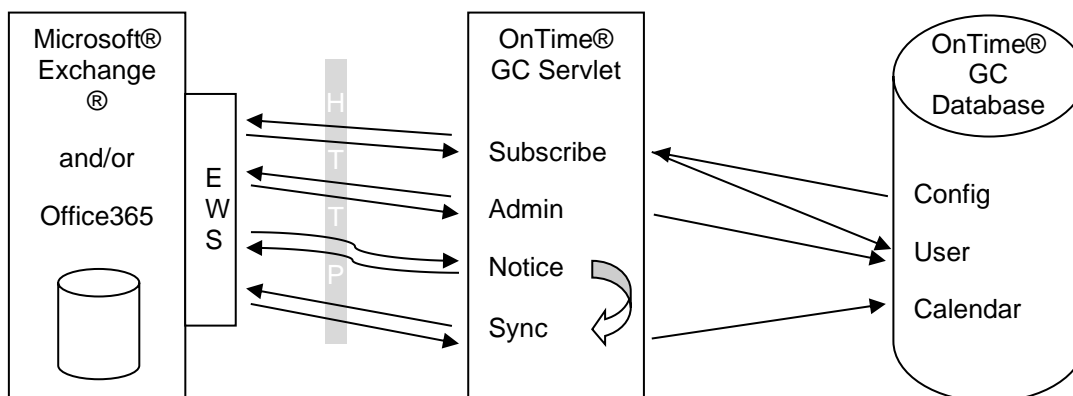


This illustration is to get an overview of the involved parts and shortly how they interact. It does not show the client-side, as this is identical to the HCL Domino® synchronisation, and data is stored in the same database.

Please notice the difference between the arrows to and from the Exchange Web Services (EWS). The 'Subscribe', 'Admin' and 'Sync' all initiate the communication, sends a request and get a reply. While for the Notice it is the Microsoft® Exchange® server that initiates, sends a request and requires a response.

## Installation

First ensure OnTime® Group Calendar 7.1.x or newer is installed, configured and running for HCL Domino® users.

Make sure the requirements regarding 'Impersonation User' and firewall are in place.

The Microsoft® Exchange® service consists of a servlet that will be installed on the HCL Domino® OnTime server. It requires the HCL Domino® HTTP service to be running and configured. It is recommended to use Internet site documents when configuring an HCL Domino® HTTP service, but it is not necessary – A host name to reach the server's servlet must be available.
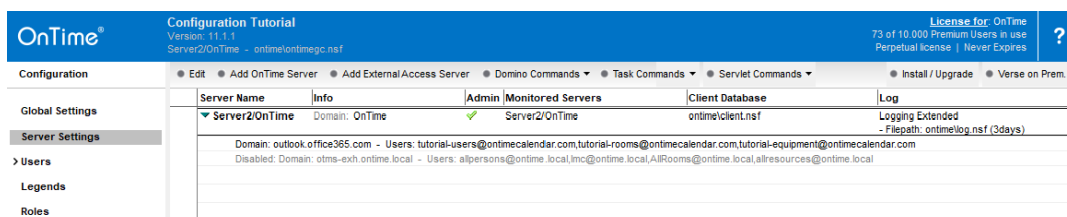
## Configuration

From the OnTime® Group Calendar configuration database – Server Settings document – click Edit. Specify Exchange server settings for the Domino server running the Microsoft® Exchange® services in the OnTime 'Server Settings' document:
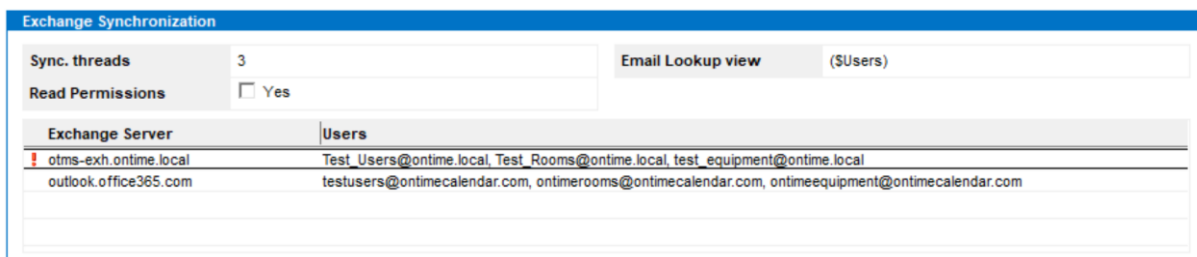


| **Sync threads:** | Number of threads to use during synchronization of users (default = 1)<br>Recommendations: 1-3 in a small environment (< 1000 users)<br>3-5 in a larger environment.<br><br>Too many threads could result in throttling on the Exchange server. |
|---|---|
| Read Permissions | Ticked. OnTime ignores permissions set on users across Exchange domains. |
| Email Lookup View: | Specify the lookup view in 'names.nsf'. |

Click the 'Add Exchange Domain' button for each logical Microsoft® Exchange® environment.

The configured Exchange servers will show as lines below your OnTime servers server name in the Server Settings view of the OnTime configuration database.



Double click a line to configure OnTime access to the Exchange server.

## Authentication to Exchange

OnTime supports three types of authentications to Office 365,
- Modern Method (OAuth - Client Credentials) and
- Modern Method (OAuth - Impersonation User)
- Legacy Method (Basic) – Basic Authentication

OnTime supports 'Impersonation user' for Exchange On-Premises

**Note:** The ApplicationImpersonation Role Based Access Control (RBAC) role in Exchange Online will be retired in February 2025. Organizations using this feature should review their current configuration and usage and implement necessary changes to minimize disruption to their service. More information can be found at
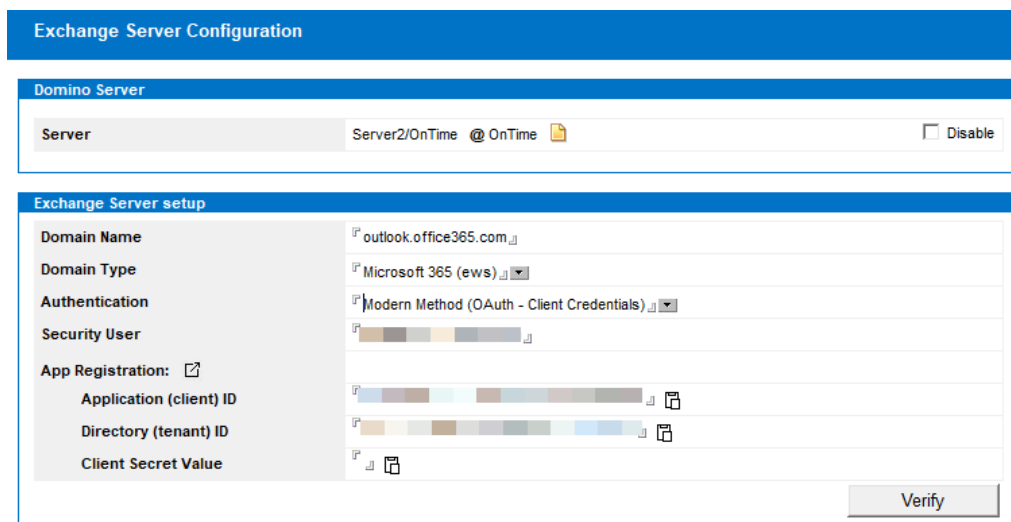https://admin.microsoft.com/AdminPortal/home?ref=MessageCenter/:/messages/MC724116

**Note:** If you change from one authentication type to another, you must run a Full synchronization of OnTime
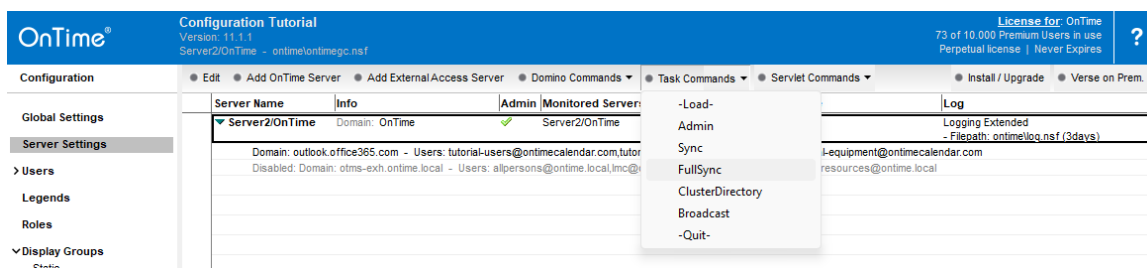


## Domain type 'Microsoft 365 (ews)'

*Authentication type 'Modern Method (OAuth - Client Credentials)'*



| | |
|---|---|
| Server: | Domino name of your OnTime server |
| Disable: | Tick to disable this configuration |
| Domain Name: | outlook.office365.com |
| Domain Type | Select 'Microsoft 365 (ews)' |
| Authentication | Select 'Modern Method (OAuth - Client Credentials)' |

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| | |
|---|---|
| Security User | Security user from Office 365 |
| App registration | Obtain values from MS Azure – look below |
| Verify | Click the 'Verify' button to verify the connection. |

**Note:** We suggest Notepad as a media in-between for copying values to OnTime.

*Procedure to register the OnTime Application in 'Microsoft Entra ID'*

a) Login to the Azure.portal (https://portal.azure.com)

b) Click view 'Manage Microsoft Entra ID'

c) Click 'App registrations'

d) Click 'New registration'

e) Enter a name for the application, do not change checkbox (Single tenant) and click register.

f) On next page (Overview) Copy the values [Application (client) ID] and [Directory (tenant) ID]

g) On the page Certificates & secrets, click 'New client secret'. Choose Expires - Never. Click Add. Copy the secret value.

h) On the page 'API permissions', click 'Add a permission'.

i) Click 'Microsoft Graph'

j) Click 'Application Permissions'

k) Search for the following permissions - tick and click 'Add' each permission

   `Calendars.ReadWrite, Directory.Read.All, MailboxSettings.ReadWrite, People.Read.All, Place.Read.All, User.Read.All,`

   You may remove 'User.Read', if already selected.

l) Click 'Add a permission'

m) Click 'Microsoft Graph'

n) Click 'Delegated permissions'

o) Search for EWS, tick:
   `EWS.AccessAsUser.All`

p) Click 'Add a permission'

q) Click 'APIs my organization uses'

r) In the field for search, enter 'Office'

s) Click 'Office 365 Exchange Online

t) Click 'Application permissions'

u) Tick 'full-access_as_app'

v) Click 'Add permissions'

w) Click 'Grant admin consent ....'

x) Click 'Yes' to answer the question ' Do you want to grant consent ...'

y) Click the 'Certificate & secrets' tab

z) Click 'New client secret'

aa) Copy the value


In the OnTime Exchange Server Configuration, click the graphic at 'Application (client) ID' to paste the Application ID from Microsoft Azure. Repeat this step with the Azure ID from 'Directory (tenant) ID and the 'Client Secret Value'.

*Description of OnTime functionality by Azure permissions*

Calendars.ReadWrite - get Online Meeting event, build Online Meeting event or add to existing event.

Directory.Read.All - used for get members for MS Teams group, get Office Location for room, get and validate current application permissions.

MailboxSettings.ReadWrite - used for automaticRepliesSetting and make it possible to get and update AutoReply for mailboxes.

User.Read.All - translate event Ids between MS Graph and MS Outlook API's.
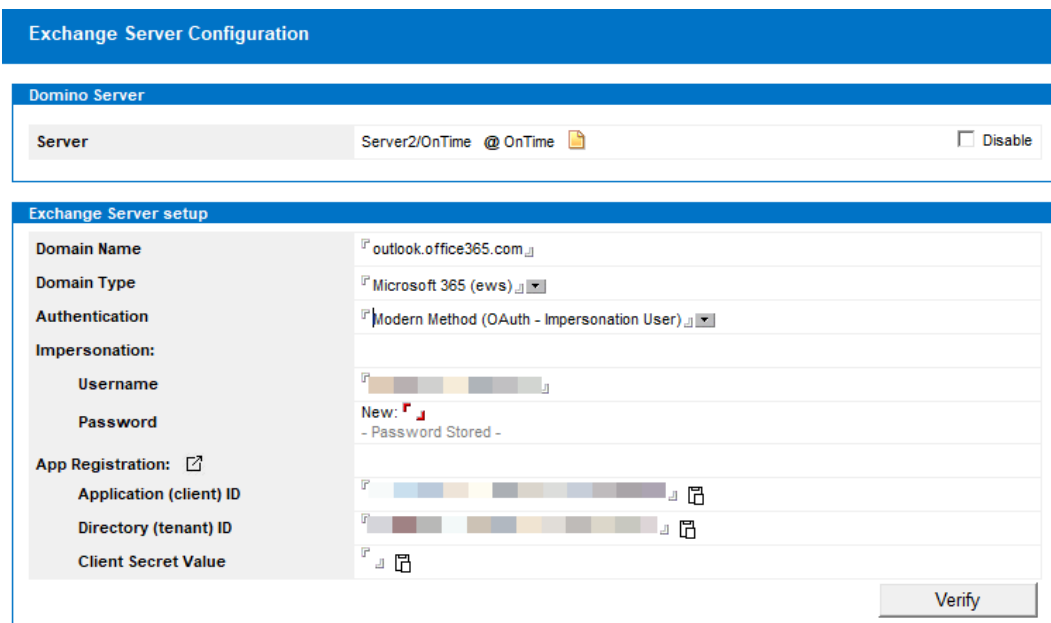
Place.Read.All - get room extended information like capacity.

People.Read.All – used for Advanced Search.

EWS.AccessAsUser.All - Delegated permissions used for OAuth authentication functionality

## Domain type 'Microsoft 365 (ews)'

*Authentication type 'Modern Method (OAuth - Impersonation User)'*



| Server: | Domino name of your OnTime server |
| --- | --- |
| Disable: | Tick to disable this configuration |

| Domain Type: | Microsoft 365 (ews) |
| --- | --- |

| Authentication | Select 'Modern Method (OAuth – Impersonation User)' |
| --- | --- |

| Impersonation Username: | The email address for the impersonation user, configured for OnTime® Group Calendar. |
| --- | --- |

| Impersonation Password: | Enter the password; it will be encoded during save and cleared from the field. |
| --- | --- |

| App registration | Obtain values from MS Azure – look below |
| --- | --- |

| Verify | Click the 'Verify' button to verify the values |
| --- | --- |

**Note:** We suggest Notepad as a media in-between for copying values to OnTime.

**Procedure to register the OnTime Application in MS Azure:**

Ref. to the section **Procedure to register the OnTime Application in 'Microsoft**

**Domain type 'Microsoft 365 (ews)'**

*Authentication type 'Legacy Method (Basic)'*



| | |
|---|---|
| Server: | Domino name of your OnTime server |
| Disable: | Tick to disable this configuration |
| Domain Name | DNS name for the Microsoft® Exchange® servers 'Microsoft® Exchange® Web Service' interface. |
| Domain Type | Microsoft 365 (ews) |
| Authentication | Legacy Method (Basic) |
| Impersonation Username: | The email address for the impersonation user, configured for OnTime® Group Calendar. |
| Impersonation Password: | Enter the password; it will be encoded during save and cleared from the field. |
| Verify | Click the 'Verify' button to verify the connection. |

**Domain type 'On-Premises'**



| | |
|---|---|
| Server: | Domino name of your OnTime server |
| Disable: | Tick to disable this configuration |
| Domain Name | DNS ref. to your local exchange server |
| Domain Type | 'On-Premises' |
| Exchange Server URL: | The protocol and DNS name for the Microsoft® Exchange® servers 'Microsoft® Exchange® Web Service' interface. |
| Impersonation Username: | The email address for the impersonation user, configured for OnTime® Group Calendar. |
| Impersonation Password: | Enter the password; it will be encoded during save and cleared from the field. |
| Verify | Click the 'Verify' button to verify the connection. |

## Users



**Premium Users:**

Persons:                    Distribution Lists of Persons that should be part of OnTime® Group
                            Calendar.
                            (As the EWS does not provide user type identification, configuration
                            distribution lists have to be set up for each user type)

Rooms:                      Distribution Lists of Rooms to be part of OnTime® Group Calendar.

Resources:                  Distribution Lists of Resources to be part of OnTime® Group Calendar.

**Freetime Users:**

Persons:                    Users with reduced features in OnTime. Only freetime/busytime may be
                            seen in OnTime. Meetings may be booked.

**Exchange Users:**

Forwarding domain(s):

                            When migrating users from Domino mail to Exchange mail, you may add
                            a new exchange email in the Notes Person Document in the 'Forwarding
                            address' field. The OnTime synchronization will change to the new
                            Exchange domain(s) referenced here.

Domino domain(s):           When migrating users from Domino mail to Exchange mail, you may add
                            a 'Domino Domain' to migrate.
                            The OnTime synchronization will change to the new Exchange
                            domain(s) referenced here.

## Subscribe Options

| Subscribe Options | |
|---|---|
| Subscription URL | http://cph006.intravision.dk/servlet/ontimegcex |
| Keep Alive | 10 min. |
| Disable Subscribe | ☑ Disable<br>Disable if testing on a server that the Exchange/Office365 server can't connect to. Require manual sync. |

Subscription URL:    The URL the current HCL Domino® servlet can be reached at, seen from the Microsoft® Exchange® server point.
Remember the firewall configuration.

Keep alive:    The keep-alive time- default 10 min. – For a large number of users increase the number, for example, 5.000 users about 20 min.
Having a low number adds network and server request load. A large number could result in long inactivity before new subscriptions are established.

Disable Subscribe    Is used for initial configuration of Exchange servers. It is used if MS Exchange cannot access the OnTime server. The synchronization is then manual.

## Synchronization Options

| Syncrhonization Options | |
|---|---|
| Max Cal Item Entries | 1000 |

Max Calendar Item Entries:  Default 1000 – may be changed in Exchange on-premise servers

Trace Communication:    Add log info of messages sent between HCL Domino® and Microsoft® Exchange® server.
(Only enable for detailed trace, and asked for during support)

Click the button 'Test Connection' to check your connection to the Exchange server.

## HTTP Connections Options

| HTTP Connection Options | |
|---|---|
| **Connection Timeout** | ⌜30.000⌟ ms. |
| **Read Timeout** | ⌜20.000⌟ ms. |
| **Proxy** | Host: ⌜ ⌟   Port ⌜｜⌟ |
| **Trust All Certificates** | ☑ Yes |
| **Trace** | ☑ Trace Communication |

| | |
|---|---|
| Connection Timeout: | Default 2.000 ms.<br>For Office365 it should be higher, current tests show 5.000ms works fine. |
| Read Timeout: | Default 10.000 ms.<br>For Office365 it should be higher, current tests show 30.000ms works fine. |
| Proxy Host: | A proxy host for connecting to Exchange server. It can be an ip address as well (default = none). |
| Proxy Port: | A proxy port for connecting to Exchange server (default = 0) |
| Trust All Certificates: | For initial setup and test, enable |
| Trace Communication: | Add log info of messages sent between HCL Domino® and Microsoft® Exchange® server.<br>(Only enable for detailed trace, and asked for during support) |

For each Microsoft®, Exchange® server endpoint create this document

- ex. One for on-premise and one for Office365.

## Installing OnTime Exchange Servlet

1. Go to the Server Setting view in OnTime Config database, choose the line for your configuration of your Exchange server.
   Click the button 'Install Exchange Servlet'
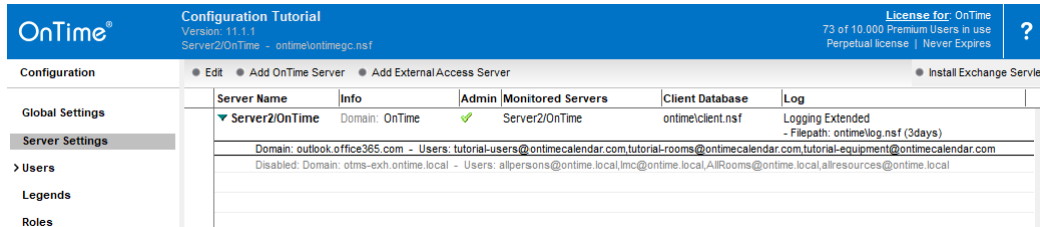


Clicking 'OK' does the following 4 steps:
a) Adds the OnTimeGCEx.jar file in your preferred directory
b) Updates the 'servlets.properties' file in the Domino data directory.
c) Updates the server document's 'Domino Web Engine' setting – example below.
d) Restarts the webserver if necessary

The 'Install Exchange Servlet' button also works with OnTime on a Linux server.

An example of a Domino server document - 'Domino Web Engine' configured for servlets:

## Manual Installation of the Exchange servlet

In case you want to change/add parameters in the servlet.properties file, please have a look below.

Find the Servlet in the Servlet folder of the OnTime installation package.

1. **Add the OnTimeGCEx.jar-file to the Domino Server**
   Our recommendation is to add it to the same directory as the OnTime Configuration database – i.e. \ontime. It makes it easier to maintain OnTime files and databases.

2. **Let Domino know that it needs to run Servlets**
   Configure the Server document in the Domino Directory, to enable the Domino Server to run Servlets.

   - Go to the Domino Directory (NAB)

   - Find the Server Document

   - Select tabs 'Internet Protocols'/'Domino Web Engine'.

   - Find the Java Servlets section

   - Enable the 'Domino Servlet Manager'

   - The servlet URL path should not be changed from the default value (/servlet)

   - Add the OnTimeGCEx.jar to your 'Class path'. Beware of the casing of this file.

   **Note:** There is a Domino default 'Class path' reference to domino /servlet. Please create a directory '/servlet' in the '/domino/data/domino/' folder otherwise; you will get a warning in the Domino Console when you enable the 'Domino Servlet Manager'.

3. **The servlets.properties file**

   **Example of file content:**
   ```
   servlets.startup=ontimegc ontimegcex

   servlet.ontimegc.code=com.ontimesuite.main.servlet.OnTimeGC
   servlet.ontimegc.initArgs=

   servlet.ontimegcex.code=com.ontimesuite.exchange.servlet.OnTimeGCEx
   servlet.ontimegcex.initArgs=
   ```

**List of "servlet.ontimegcex.initArgs" parameters:**
- parameters are separated by commas.

| | |
|---|---|
| Server | The server the OnTime Config database is located on (default = the current server) |
| Filepath | The filepath for the OnTime Config database (default = "ontime/ontimegc.nsf") |

**Examples of servlet.ontimegcex.initArgs settings:**

servlet.ontimegcex.initArgs=Server=Server2/OnTime

**OR** if you want to state both a server and a Filepath:

servlet.ontimegcex.initArgs=Server=Server2/OnTime,Filepath=ontime/ontimegc.nsf

4. If there are any changes of the above, please restart the Domino HTTP server.

## Running the Microsoft® Exchange® servlet

During the start of the HCL Domino® HTTP task and servlet container, the OnTime® Group Calendar servlet will connect to the Microsoft® Exchange® server(s) and do the following:

1. Resolve the Distribution Lists (Persons, Rooms & Resources).
2. For each new user, it creates an entry in the Config database with only the email and the Microsoft® Exchange® name.
3. Establishes a subscription on the Microsoft® Exchange® server.

Every minute it will:

1. Verify subscription for any expired (keep-alive) and any requested re-subscribe.

Every hour it will:

1. Resolve the Distribution lists, add new users and remove obsolete users from the database.

Every day it will (at midnight):

1. For each Microsoft® Exchange® user in the config database (found in the Distribution Lists) read the Microsoft® Exchange® user information for the meta data (Full name, Location, Department, etc.) and update the config database.
2. Calculate the Roles according to the Roles documents.

On a request from Microsoft® Exchange® server the servlet performs the following tasks:

1. Synchronises a user that has modified data.
2. Requests re-subscribe for users when informed by Microsoft® Exchange® server.
3. Unsubscribes any obsolete user.
4. Unsubscribes any obsolete subscription.
5. Replies on keep-alive status.

If an administrator makes changes to Server settings parameters, a restart of the servlet is necessary by using the command action "HTTP Restart" or issuing the HCL Domino® server console command "restart task http".

A change of members in a Distribution List will be processed hourly. To force an update using the 'Exchange Servlet Commands' action 'Users+Roles Update' from the Server Settings document.

## Exchange Servlet Commands

- from the Server Settings document in the OnTime Config database.
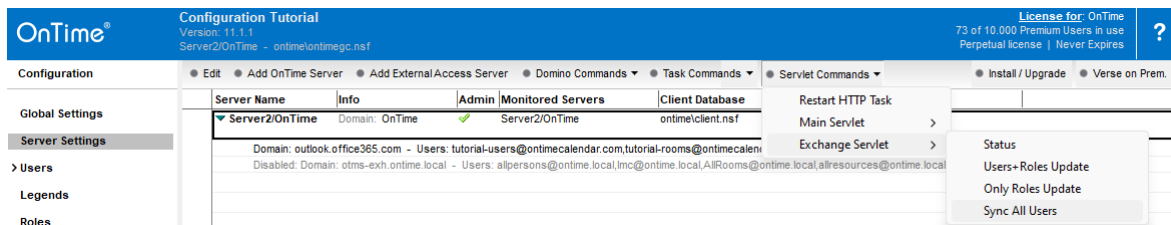


| | |
|---|---|
| Status | Returns status information of the servlet. |
| Users+Roles Update | Requests the servlet to update the Subscribe list, reads all users metadata and recalculates roles. |
| Only Roles Update | Requests the servlet to recalculate roles. |
| Sync All Users | Requests sync of all users, by adding each user to the synchronisation queue. The synchronisation thread will then process them one by one. |

Example from clicking 'Exchange Servlet'/Status:
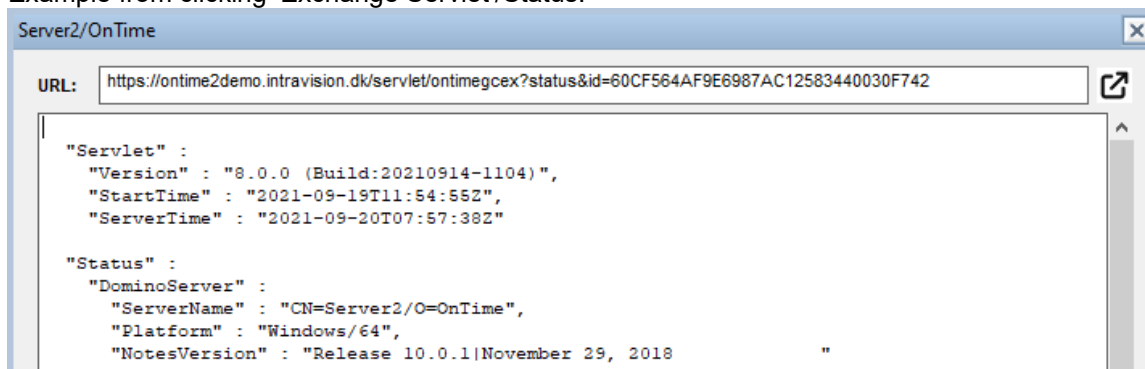
## UFT – Universal Free Time

The feature UFT is dependent on a Domino server task called 'OnTimeUFT'.
Per default it is installed at the OnTime server together with the main OnTime task, OnTimeGC.
The OnTimeUFT tasks is responsible for collecting 'Free Time' information from both Domino and Exchange users.
In a smaller setup you might have installed OnTime on the Domino mail server, so the UFT will work for letting HCL Notes, iNotes, Verse mail clients see 'Free Time' for other users across Domino and Exchange.

In a larger setup you might have the OnTime server monitoring more Domino mail servers.

Example from the OnTimeGC database/Server Settings:

**OnTime Server Settings**

| OnTime Server | Server2/OnTime @ OnTime |
|---|---|

**Synchronization Settings**

| Servers being monitored for synchronisation | Server2/OnTime |
|---|---|
| Monitored servers excluded from update in personal mail databases. | |

All Domino mail servers that acts as 'HomeServer' for HCL Notes, iNotes or Verse clients must have the 'OnTimeUFT' task running.
If the 'OnTimeUFT' task is missing on a mail server you may find it in your OnTime installation package in the folder: OnTimeGC-x.x\ExtraFiles\Tasks\Windows64.
The file name is 'nontimeuft.exe' - the character 'n' is for Windows (NT).
**Note:** The OnTimeUFT task is currently not supported with Domino on Linux.

Please copy this file to the Domino program  directory of the Domino mail servers, where it is missing.

The task must be added to the 'notes.ini' parameter 'ServerTasks' as 'OnTimeUFT' (without the character 'n'), a parameter for referencing the OnTime server is required.

Example of the ServerTasks parameter (all in one line) in 'notes.ini':
```
ServerTasks=Replica,Router,Update,AMgr,Adminp,Sched,CalConn,
RnRMgr,http,OnTimeGC,OnTimeUFT http://ontime.example.com
```

If you do not want to restart the Domino server after this change in the 'notes.ini' you may load the task in the Domino console with:
>load `OnTimeUFT http://ontime.example.com`

This configuration may alternatively be made through 'https'.


For debug in the Domino console, if you contact OnTime support:
>`tell OnTimeUFT quit`
>`load OnTimeUFT http://ontime.example.com -debug`