



One Identity Manager 8.1.1

Administration Guide for Connecting
to Exchange Online

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Legend

-  **WARNING:** A WARNING icon indicates a potential for property damage, personal injury, or death.
-  **CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.
-  **IMPORTANT, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

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Managing Exchange Online environments

The key aspects of administrating an Exchange Online system with One Identity Manager are local mapping of mailboxes, email users, email contacts, mail-enabled distribution groups, and Office 365 groups from a cloud environment.

The system information for the Exchange Online structure is loaded into the One Identity Manager database during data synchronization. It is only possible to customize certain system information in One Identity Manager due to the complex dependencies and far reaching effects of changes.

For more detailed information about the Exchange Online structure, see the Exchange Online documentation from Microsoft.

Related topics

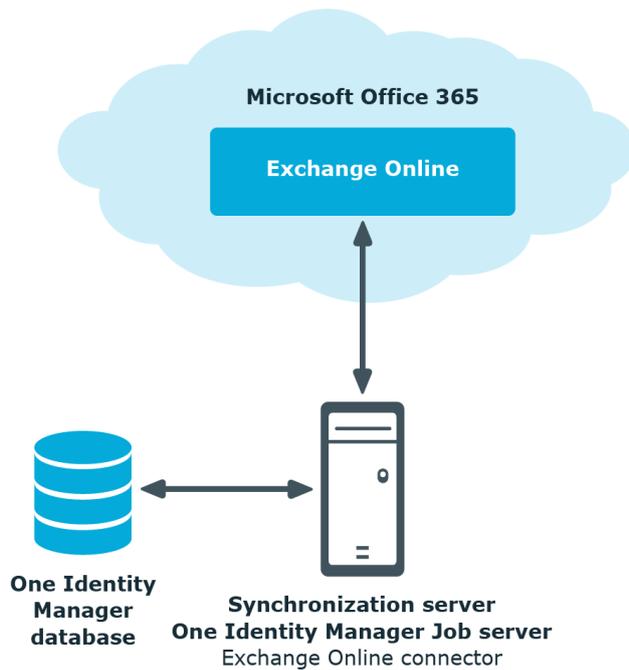
- [Appendix: Editing system objects](#)

Architecture overview

To access Exchange Online organizational data, the Exchange Online connector is installed on a synchronization server. The synchronization server ensures data is compared between the One Identity Manager database and Exchange Online. The Exchange Online connector is part of the Exchange Online Module and responsible for communicating with the Microsoft Office 365 subscriptions of Exchange Online in the cloud. Windows PowerShell is used to access the Exchange Online data.

To access the data in an Exchange Online organization, the Azure Active Directory target system containing the organization must be synchronized.

Figure 1: Architecture for synchronization



One Identity Manager users for managing an Exchange Online environment

The following users are used for setting up and administration of an Exchange Online environment.

Table 1: Users

Users	Task
Target system administrators	<p>Target system administrators must be assigned to the Target systems Administrators application role.</p> <p>Users with this application role:</p> <ul style="list-style-type: none"> • Administrate application roles for individual target systems types. • Specify the target system manager. • Set up other application roles for target system managers if required. • Specify which application roles for target system

Users	Task
Target system managers	<p>managers are mutually exclusive.</p> <ul style="list-style-type: none"> • Authorize other employee to be target system administrators. • Do not assume any administrative tasks within the target system. <hr/> <p>Target system managers must be assigned to Target systems Exchange Online or a sub-application role.</p> <p>Users with this application role:</p> <ul style="list-style-type: none"> • Assume administrative tasks for the target system. • Create, change or delete target system objects, like user accounts or groups. • Edit password policies for the target system. • Prepare groups for adding to the IT Shop. • Can add employees, who have an other identity than the Primary identity. • Configure synchronization in the Synchronization Editor and defines the mapping for comparing target systems and One Identity Manager. • Edit the synchronization's target system types and outstanding objects. • Authorize other employees within their area of responsibility as target system managers and create child application roles if required.
One Identity Manager administrators	<ul style="list-style-type: none"> • Create customized permissions groups for application roles for role-based login to administration tools in Designer as required. • Create system users and permissions groups for non-role-based login to administration tools in Designer as required. • Enable or disable additional configuration parameters in Designer as required. • Create custom processes in Designer as required. • Create and configures schedules as required. • Create and configure password policies as required.

Setting up synchronization with an Exchange Online environment

One Identity Manager supports synchronization with Exchange Online.

One Identity Manager is responsible for synchronizing data between the Exchange Online database and the One Identity Manager Service. Synchronization prerequisites are:

- Synchronization of the Azure Active Directory system is carried out regularly.
- The Azure Active Directory client is declared in One Identity Manager.

To load Exchange Online objects into the One Identity Manager database for the first time

1. Prepare a user account in the Azure Active Directory tenant with sufficient permissions for synchronization.
2. One Identity Manager parts for managing Exchange Online systems are available if "TargetSystem\AzureAD\ExchangeOnline" is set.
 - Check whether the configuration parameter is set in the Designer. Otherwise, set the configuration parameter and compile the database.
 - Other configuration parameters are installed when the module is installed. Check the configuration parameters and modify them as necessary to suit your requirements.
3. Install and configure a synchronization server and declare the server as Job server in One Identity Manager.
4. Create a synchronization project with the Synchronization Editor.

Detailed information about this topic

- [Users and Permissions for Synchronizing with Exchange Online](#) on page 9
- [Setting up the synchronization server](#) on page 11
- [Configuring participating servers for remote access through Windows PowerShell](#) on page 15
- [Creating a synchronization project for initial synchronization of an Exchange Online environment](#) on page 16

- [Deactivating synchronization on page 34](#)
- [Exchange Online synchronization features on page 25](#)
- [Customizing synchronization configuration on page 27](#)
- [Appendix: Configuration parameters for managing Exchange Online on page 58](#)
- [Appendix: Default project template for Exchange Online on page 60](#)

Users and Permissions for Synchronizing with Exchange Online

The following users are involved in synchronizing One Identity Manager with Exchange Online.

Table 2: Users for synchronization

Users	Permissions
User for accessing Exchange Online	<p>For full synchronization of Exchange Online objects with the supplied One Identity Manager default configuration, you must provide a user account with the following permissions.</p> <ul style="list-style-type: none"> • Member of role group "Organization Management" • Member of role group "Recipient management" <p>i NOTE: Note the password expiry date for the user account for synchronization. Expired passwords will cause synchronization issues.</p> <p>You can deactivate password expiration for the user account in One Identity Manager. For more information, see the One Identity Manager Administration Guide for Connecting to Azure Active Directory.</p>
One Identity Manager Service user account	<p>The user account for One Identity Manager Service requires rights to carry out operations at file level, for example, assigning user rights and creating and editing directories and files.</p> <p>The user account must belong to the Domain users group.</p> <p>The user account must have the Login as a service extended user right</p> <p>The user account requires access rights to the internal web service.</p>

Users

Permissions

i **NOTE:** If One Identity Manager Service runs under the network service (**NT Authority\NetworkService**), you can issue access rights for the internal web service with the following command line call:

```
netsh http add urlacl url=http://<IP address>:<port number>/ user="NT AUTHORITY\NETWORKSERVICE"
```

The user account needs full access to the One Identity Manager Service installation directory in order to automatically update the One Identity Manager.

In the default installation the One Identity Manager is installed under:

- %ProgramFiles(x86)%\One Identity (on 32-bit operating systems)
- %ProgramFiles%\One Identity (on 64-bit operating systems)

User for accessing the One Identity Manager database

The **Synchronization** default system user is provided for executing synchronization with an application server.

Necessary access rights explained

The user account for synchronization should be a member of the following roles:

- Organization management
Administrators who are members of the Organization Management role group have administrative access to the entire Exchange Online organization and can perform almost any task against any Exchange Online object. However, some exceptions apply (such as Discovery Management).
- Recipient management
Administrators who are members of the Recipient Management role group have administrative access to create or modify Exchange Online recipients within the Exchange Online organization.

There are two ways that you can assign these roles.

To assign permissions through the Microsoft Online Portal

i **NOTE:** This method requires assigning an Office 365 license to the user account for synchronization.

1. Navigate to <https://portal.microsoftonline.com> and log in as administrator. This takes you to the Office 365 welcome page.
2. Click the **Administrator** tile to open the Admin Center portal.
3. Select **Admin Center | Exchange**. This takes you to the Exchange Admin Center.

4. Click **Permissions** in the menu on the left.
5. Select **Recipient Management** and click edit.
6. Add the user account for synchronization to the **Members** list.
7. Repeat steps 5 and 6 for the role **Organization Management**.

NOTE: If the synchronization user account does not appear in the list of members, you can allocate the permissions through Windows PowerShell as described below. It is most likely that the user account does not have a mailbox or is not assigned an Office 365 license. In this case, use the next method.

To assigned permissions through Windows PowerShell

1. Run Windows PowerShell with administrator credentials from the context menu **Run as Administrator**.

2. Enter this command at the prompt:

```
$session = New-PSSession -Configurationname Microsoft.Exchange -ConnectionUri
https://outlook.office365.com/powershell-liveid/ -Credential (Get-Credential) -
Authentication Basic -AllowRedirection
```

```
$session = Import-PSSession
```

This command determines the access data required for making the connection and establishes the connection to Exchange Online.

3. Test the connection with the following command:

```
Get-OrganizationConfig | fl *displayname*
```

Display the name of your organization.

4. To add the user account for synchronization to the roles, enter the following commands:

```
Add-RoleGroupMember -Identity "Recipient Management" -Member "<user name of the
synchronization user>"
```

```
Add-RoleGroupMember -Identity "Recipient Management" -Member "<synchronization
user name>"
```

5. Close the Exchange Online connection with:

```
Get-PSSession | Remove-PSSession
```

Setting up the synchronization server

To set up synchronization with an Exchange Online environment, a server must be available on which the following software is installed:

- Windows operating system

Following versions are supported:

- Windows operating system version 8.1. or later
- Windows Server 2012
- Windows Server 2012 R2
- Windows Server 2016
- Microsoft .NET Framework Version 4.7.2 or later
 - ① **NOTE:** Take the target system manufacturer's recommendations into account.
- Windows Management Framework 4.0
- One Identity Manager Service, Exchange Online connector
 - Install One Identity Manager components with the installation wizard.
 1. Select **Select installation modules with existing database.**
 2. Select the machine role **Server | Job server | Exchange Online.**

① **IMPORTANT:** The Exchange Online One Identity Manager connector uses Windows PowerShell to communicate with the Microsoft Exchange server. For communication, extra configuration is required on the synchronization server and in Exchange Online. For more information, see [Configuring participating servers for remote access through Windows PowerShell](#) on page 15.

All One Identity Manager Service actions are executed against the target system environment on the synchronization server. Data entries required for synchronization and administration with the One Identity Manager database are processed by the synchronization server. The synchronization server must be declared as a Job server in One Identity Manager.

① **NOTE:** If several target system environments of the same type are synchronized under the same synchronization server, it is useful to set up a Job server for each target system on performance grounds. This avoids unnecessary swapping of connections to target systems because a Job server only has to process tasks of the same type (re-use of existing connections).

Use the One Identity Manager Service to install the Server Installer. The program executes the following steps:

- Setting up a Job server.
- Specifying machine roles and server function for the Job server.
- Remote installation of One Identity Manager Service components corresponding to the machine roles.
- Configuration of One Identity Manager Service.
- Starts the One Identity Manager Service.

① **NOTE:** The program executes remote installation of the One Identity Manager Service. Local installation of the service is not possible with this program. Remote installation is only supported within a domain or a trusted domain.

For remote installation of One Identity Manager Service, you require an administrative workstation on which the One Identity Manager components are installed. For detailed information about installing a workstation, see the *One Identity Manager Installation Guide*.

To install and configure One Identity Manager Service remotely on a server

1. Start the program Server Installer on your administrative workstation.
2. Enter the valid connection credentials for the One Identity Manager database on the **Database connection** page.
3. Specify the server on which you want to install One Identity Manager Service on the **Server properties** page.
 - a. Select a Job server from the **Server** menu.
 - OR -
 - To create a new Job server, click **Add**.
 - b. Enter the following data for the Job server.

Table 3: Job server properties

Property	Description
Server	Job server name.
Queue	Name of the queue to handle the process steps. Each One Identity Manager Service within the network must have a unique queue identifier. The process steps are requested by the job queue using exactly this queue name. The queue identifier is entered in the One Identity Manager Service configuration file.
Full server name	Full server name in accordance with DNS syntax. Example: <Name of servers>.<Fully qualified domain name>

NOTE: You can use the **Extended** option to make changes to other properties for the Job server. You can also edit the properties later with Designer.

4. Select **Exchange Online** on the **Machine roles** page.
5. On the **Server functions** page, select **Exchange Online connector (via Windows PowerShell)**.
6. Check the One Identity Manager Service configuration on the **Service settings** page.

NOTE: The initial service configuration is predefined already. If further changes need to be made to the configuration, you can do this later with the Designer. For detailed information about configuring the service, see the *One Identity Manager Configuration Guide*.

7. To configure remote installations, click **Next**.
8. Confirm the security prompt with **Yes**.
9. Select the directory with the install files on **Select installation source**.
10. Select the file with the private key on the page **Select private key file**.

NOTE: This page is only displayed when the database is encrypted.

11. Enter the service's installation data on the **Service access** page.

Table 4: Installation data

Data	Description
Computer	<p>Server on which to install and start the service from.</p> <p>To select a server</p> <ul style="list-style-type: none"> • Enter a name for the server. - OR - • Select a entry from the list.
Service account	<p>User account data for the One Identity Manager Service.</p> <p>To enter a user account for the One Identity Manager Service</p> <ul style="list-style-type: none"> • Set the option Local system account. This starts the One Identity Manager Service under the NT AUTHORITY\SYSTEM account. - OR - • Enter user account, password and password confirmation.
Installation account	<p>Data for the administrative user account to install the service.</p> <p>To enter an administrative user account for installation</p> <ul style="list-style-type: none"> • Enable Advanced. • Enable Current user. This uses the user account of the current user. - OR - • Enter user account, password and password confirmation.

12. Click **Next** to start installing the service.
Installation of the service occurs automatically and may take some time.
13. Click **Finish** on the last page of Server Installer.

NOTE: The service is entered with the name **One Identity Manager Service** in the server service management.

Related topics

- [Configuring participating servers for remote access through Windows PowerShell](#) on page 15

Configuring participating servers for remote access through Windows PowerShell

NOTE: Run the configuration steps on the synchronization server.

To configure a server for remote access using Windows PowerShell

1. Run Windows PowerShell with administrator credentials from the context menu **Run as Administrator**.
2. Enter this command at the prompt:
`winrm quickconfig`
This command prepares for remote access usage.
3. Enter this command at the prompt:
`Set-ExecutionPolicy RemoteSigned`
This command permits the execution of Windows PowerShell commands (Cmdlets). The script must be signed by a trusted publishers.

To test remote access through Windows PowerShell from the synchronization server to the Microsoft Office 365.

1. Run Windows PowerShell on the synchronization server.
2. Enter this command at the prompt:
`$creds = New-Object System.Management.Automation.PsCredential -ArgumentList "<user>@<domain name>.onmicrosoft.com", (ConvertTo-SecureString "<password>" -AsPlainText -force)`
- OR -
`$creds = Get-Credential`
This command finds the access data required for making the connection.
3. Enter this command at the prompt:
`$session = New-PSSession -Configurationname Microsoft.Exchange -ConnectionUri https://outlook.office365.com/powershell-liveid/ -Credential $creds -Authentication Basic -AllowRedirection`
With command creates a remote session.

NOTE: The One Identity Manager establishes a connection to Outlook.

4. Enter this command at the prompt:

```
Import-PsSession $session
```

This command imports the remote session so that the connection can be accessed.

5. Test the functionality with any Microsoft Office 365 command. For example, enter the following command at the prompt:

```
Get-Mailbox
```

Creating a synchronization project for initial synchronization of an Exchange Online environment

Use Synchronization Editor to configure synchronization between the One Identity Manager database and Exchange Online. The following describes the steps for initial configuration of a synchronization project.

NOTE: When setting up the synchronization, note the recommendations described under [Exchange Online synchronization features](#) on page 25.

IMPORTANT: Each Exchange Online environment should have its own synchronization project.

After the initial configuration, you can customize and configure workflows within the synchronization project. Use the workflow wizard in the Synchronization Editor for this. The Synchronization Editor also provides different configuration options for a synchronization project.

IMPORTANT: It must be possible to reach Exchange Online servers by DNS query for successful authentication. If the DNS cannot be resolved, the target system connection is refused.

Prerequisites for setting up a synchronization project

- Synchronization of the Azure Active Directory system is carried out regularly.
- The Azure Active Directory client is declared in One Identity Manager.

Have the following information available for setting up a synchronization project.

Table 5: Information Required for Setting up a Synchronization Project

Data	Explanation						
User account and password for logging in	<p>User account and password for logging in to Exchange Online.</p> <p>Example:</p> <pre data-bbox="440 409 975 506"><user>@<domain.com> <user name of the synchronization user>@yourorganization.onmicrosoft.com</pre> <p>Make a user account available with sufficient permissions. For more information, see Users and Permissions for Synchronizing with Exchange Online on page 9.</p>						
Synchronization server for Exchange Online	<p>The One Identity Manager Service with the Exchange Online connector must be installed on the synchronization server.</p> <p>Table 6: Additional properties for the Job server</p> <table border="1" data-bbox="440 801 1394 1014"> <thead> <tr> <th data-bbox="451 801 584 828">Property</th> <th data-bbox="667 801 751 828">Value</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 857 560 920">Server function</td> <td data-bbox="667 857 1023 884">Exchange Online connector</td> </tr> <tr> <td data-bbox="451 947 619 974">Machine role</td> <td data-bbox="667 947 1177 1010">Server/Jobserver/Azure Active Directory/ExchangeOnline</td> </tr> </tbody> </table> <p>For more information, see Setting up the synchronization server on page 11.</p>	Property	Value	Server function	Exchange Online connector	Machine role	Server/Jobserver/Azure Active Directory/ExchangeOnline
Property	Value						
Server function	Exchange Online connector						
Machine role	Server/Jobserver/Azure Active Directory/ExchangeOnline						
One Identity Manager database connection data	<ul style="list-style-type: none"> • Database server • Database • SQL Server Login and password • Specifies whether integrated Windows authentication is used. This type of authentication is not recommended. If you decide to use it anyway, ensure that your environment supports Windows authentication. 						
Remote connection server	<p>To configure synchronization with a target system, One Identity Manager must load the data from the target system. One Identity Manager communicates directly with target system to do this. Sometimes direct access from the workstation on which the Synchronization Editor is installed is not possible, because of the firewall configuration, for example, or because the workstation does not fulfill the necessary hardware and software requirements. If direct access to the workstation is not possible, you can set up a remote connection.</p> <p>The remote connection server and the workstation must be in the same</p>						

Data	Explanation
	<p>Active Directory domain.</p> <p>Remote connection server configuration:</p> <ul style="list-style-type: none"> • One Identity Manager Service is started • RemoteConnectPlugin is installed • Exchange Online connector is installed <p>The remote connection server must be declared as a Job server in One Identity Manager. The Job server name is required.</p> <p>TIP: The remote connection server requires the same configuration as the synchronization server (with regard to the installed software and entitlements). Use the synchronization as remote connection server at the same time, by simply installing the RemoteConnectPlugin as well.</p> <p>For more detailed information about setting up a remote connection, see the <i>One Identity Manager Target System Synchronization Reference Guide</i>.</p>

- TIP:** The following sequence describes how you configure a synchronization project if Synchronization Editor is both:
- executed In default mode, and
 - started from the launchpad
- If you execute the project wizard in expert mode or directly from Synchronization Editor, additional configuration settings can be made. Follow the project wizard instructions through these steps.

To set up initial synchronization project for Exchange Online

1. Start the Launchpad and log on to the One Identity Manager database.
 - TIP:** If synchronization is executed by an application server, connect the database through the application server.
2. Select **Target system type Exchange Online** and click **Start**.
This starts the Synchronization Editor's project wizard.
3. On the **System access** page, specify how One Identity Manager can access the target system.
 - If access is possible from the workstation on which you started Synchronization Editor, you do not need to make any settings.
 - If access is not possible from the workstation on which you started Synchronization Editor, you can set up a remote connection.

Enable the **Connect using remote connection server** option and select the server to be used for the connection under **Job server**.

4. On the **Connection parameters** page, enter the login data for connecting to Exchange Online.

Table 7: Connection parameters for the Exchange Online

Property	Description
User name (user@-domain)	Fully qualified name (FQDN) of the user account for log on. Example: <code><user>@<domain.com></code> <code>sync.user@yourorganization.onmicrosoft.com</code>
Password	Password for the user account.

User **Add set** to enter more connection parameters. This allows you to add more synchronization users. These are queried cyclically by the Exchange Online connector when queries are sent to Exchange Online. By using multiple synchronization users, it takes longer to reach the throttling limit.

For more detailed information about throttling limits in Exchange Online, see the Exchange Online documentation from Microsoft.

To test the connection parameters separately, click in the set. Click **Check all sets** to check all sets at once.

Click **Next**.

5. Then click **Finished** to return to the project wizard.
6. The wizard loads the target system schema. This may take a few minutes depending on the type of target system access and the size of the target system.
7. On the **Restrict target system access** page, you specify how system access should work. You have the following options:

Table 8: Specify target system access

Option	Meaning
Read-only access to target system.	Specifies whether a synchronization workflow is only to be set up for the initial loading of the target system into the One Identity Manager database. The synchronization workflow has the following characteristics: <ul style="list-style-type: none"> • Synchronization is in the direction of One Identity Manager.

Option	Meaning
Read/write access to target system. Provisioning available.	<ul style="list-style-type: none"> Processing methods in the synchronization steps are only defined for synchronization in the direction of One Identity Manager. <hr/> <p>Specifies whether a provisioning workflow is to be set up in addition to the synchronization workflow for the initial loading of the target system.</p> <p>The provisioning workflow displays the following characteristics:</p> <ul style="list-style-type: none"> Synchronization is in the direction of the Target system. Processing methods are only defined in the synchronization steps for synchronization in the direction of the Target system. Synchronization steps are only created for such schema classes whose schema types have write access.

- Select the synchronization server to execute synchronization on the **Synchronization server** page.

If the synchronization server is not declared as a Job server in the One Identity Manager database yet, you can add a new Job server.

- Click  to add a new Job server.
- Enter a name for the Job server and the full server name conforming to DNS syntax.
- Click **OK**.

The synchronization server is declared as Job server for the target system in the One Identity Manager- database.

 **NOTE:** After you save the synchronization project, ensure that this server is set up as a synchronization server.

- To close the project wizard, click **Finish**.

This creates and allocates a default schedule for regular synchronization. Enable the schedule for regular synchronization.

The synchronization project is created, saved and enabled immediately.

 **NOTE:** If you do not want the synchronization project to be activated immediately, disable the **Activate and save the new synchronization project automatically** option. In this case, save the synchronization project manually before closing the Synchronization Editor.

 **NOTE:** The connection data for the target system is saved in a variable set and can be modified under **Configuration | Variables** in Synchronization Editor.

To configure the content of the synchronization log

1. Open the synchronization project in the Synchronization Editor.
2. To configure the synchronization log for target system connection, select the category **Configuration | Target system**.
3. To configure the synchronization log for the database connection, select **Configuration | One Identity Manager connection**.
4. Select the **General** view and click **Configure**.
5. Select the **Synchronization log** view and set **Create synchronization log**.
6. Enable the data to be logged.

NOTE: Some content generates a particularly large volume of log data. The synchronization log should only contain data required for troubleshooting and other analyses.

7. Click **OK**.

To synchronize on a regular basis

1. Open the synchronization project in the Synchronization Editor.
2. Select the category **Configuration | Start up configurations**.
3. Select a start up configuration in the document view and click **Edit schedule**.
4. Edit the schedule properties.
5. To enable the schedule, click **Activate**.
6. Click **OK**.

To start initial synchronization manually

1. Open the synchronization project in the Synchronization Editor.
2. Select the category **Configuration | Start up configurations**.
3. Select a start up configuration in the document view and click **Execute**.
4. Confirm the security prompt with **Yes**.

Related topics

- [Setting up the synchronization server](#) on page 11
- [Advanced settings for the Exchange Online connector](#)
- [Users and Permissions for Synchronizing with Exchange Online](#) on page 9
- [Displaying synchronization results](#) on page 24
- [Exchange Online synchronization features](#) on page 25
- [Customizing synchronization configuration](#) on page 27
- [Appendix: Default project template for Exchange Online](#) on page 60

Advanced settings for the Exchange Online connector

You can specify whether you want to set advanced options in the Synchronization Editor project wizard on the page **Connect Exchange Online**. These settings allow you to change the following options for communicating with Exchange Online:

- The number of concurrent connections per connection parameter set
- The definition of Windows PowerShell commands

Number of concurrent connections per connection parameter set

IMPORTANT: You should only make changes to this option with the help of support desk staff. Changes to this setting will have wide ranging effects on synchronization and must be made carefully.

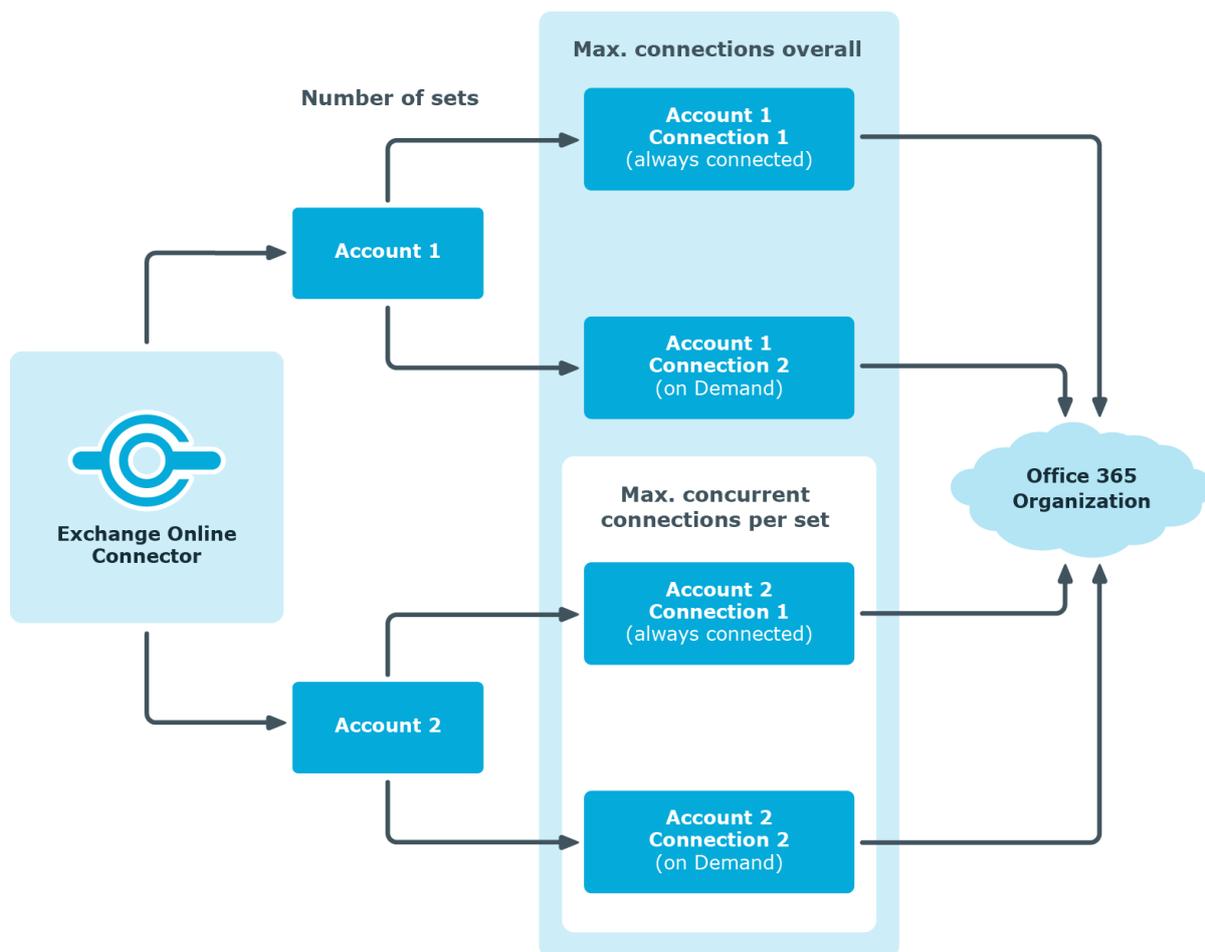
Use this option to set the number of concurrent connections for each connection parameter set or for each user account for synchronization. The setting specifies how many concurrent connections will be created for each user account. The default value is 2. Exchange Online currently allows three connections per user account on the server side.

When the Exchange Online connector creates the connection, it creates one Windows PowerShell session per connection parameter set regardless of the number of queries that follow. Further connections are created on demand, for example, when loading multiple objects during the synchronization.

The maximum number of sessions established to Exchange Online can be calculated with the following formula:

Maximum number of Windows PowerShell sessions = Number of parameter sets * Value of concurrent connection per connection parameter set

The minimum number of sessions established to Exchange Online is the same as the number of connection parameter sets.



To change the number of concurrent connections

1. On the **Connect to Exchange Online** page in the Synchronization Editor connection wizard, select **Show advanced options** and click **Next**.
2. Enter a value between 1 and 3 in **concurrent connections per connection parameter set**.
3. On the **Connection parameters** page, enter the login data for connecting to Exchange Online. For more information, see [Creating a synchronization project for initial synchronization of an Exchange Online environment](#)
4. Click **Finish**.

Customizing the connection definition

You can use this setting to adjust the definition used by the connector in order to convert inputs and outputs between the Exchange Online Cmdlets and the schema of the Synchronization Engine.

- IMPORTANT:** You should only make changes to the connector definition with the help of support desk staff. Changes to this setting will have wide ranging effects on synchronization and must be made carefully.

- NOTE:** A customized connection definition is not overwritten by default and must be made with careful consideration.

To customize the connector definition

1. Open the synchronization project in the Synchronization Editor.
2. Select **Configuration | Target system**.
3. Click **Edit connection**.
This starts the system connection wizard.
4. Enable **Show advanced options** on the system connection wizard's start page.
5. Customize the connector definition as required on the **Advanced options** page.
 - a. Select **Customize connector definition**.
 - b. Edit the definition according to the instructions given by the support desk staff. You take the following action:
 - Choose  to load the definition from a file.
 - Use to test the definition for errors.
 - Choose  to display the differences to the standard version.
6. Save the changes.

Displaying synchronization results

Synchronization results are summarized in the synchronization log. You can specify the extent of the synchronization log for each system connection individually. One Identity Manager provides several reports in which the synchronization results are organized under different criteria.

To display a synchronization log

1. Open the synchronization project in the Synchronization Editor.
2. Select **Logs**.
3. Click  in the navigation view toolbar.
Logs for all completed synchronization runs are displayed in the navigation view.
4. Select a log by double-clicking on it.
An analysis of the synchronization is shown as a report. You can save the report.

To display a provisioning log.

1. Open the synchronization project in the Synchronization Editor.
2. Select **Logs**.
3. Click

 in the navigation view toolbar.

Logs for all completed provisioning processes are displayed in the navigation view.

4. Select a log by double-clicking on it.

An analysis of the provisioning is shown as a report. You can save the report.

The log is marked in color in the navigation view. This mark shows you the execution status of the synchronization/provisioning.

Synchronization logs are stored for a fixed length of time.

To modify the retention period for synchronization logs

- In Designer, enable the **DPR | Journal | LifeTime** configuration parameter and enter the maximum retention period.

Exchange Online synchronization features

There are a number of features for synchronizing Exchange Online environments, which are described here.

Dependency resolution

By default, automatic synchronization step dependency resolution is turned off in the synchronization workflow. This reduces the number of calls required to Exchange Online. This can lead to unresolved references during synchronization, which are handled in the maintenance phase at the end of synchronization.

Multiple organizations are not supported

Due to the dynamic number of used login accounts, variable sets cannot be used to parametrize the connection. For this reason, creating more base objects in one synchronization project is not supported.

Changing mailbox types in the Exchange Online portal

The default template for Exchange Online supports conversion of mailbox types as follows:

- Shared mailbox to user mailbox
- User mailbox to share mailbox
- Equipment mailbox to room mailbox
- Room mailbox to equipment mailbox

NOTE: In performing an unsupported change, for example, a room mailbox to a shared mailbox, the synchronization will mark the room mailbox as "missing" and fail to create the shared mailbox due to naming violations. This scenario can only be resolved manually.

NOTE: One Identity Manager does not support handling of mailbox types.

Synchronization of mailbox usage information

Synchronization of mailbox usage information is done in a separate synchronization step. Loading this information from Exchange Online is potentially very time consuming. Therefore, it make sense to create a separate workflow that includes a synchronization step for loading this data. You can run this workflow at longer intervals than the workflow without usage data.

The following usage information is synchronized:

Schema property in the Target System	Description
AssociatedItemCount	Number of elements assigned to this mailbox.
DeletedItemCount	Number of deleted elements.
DumpsterMessagesPerFolderCountReceiveQuota	Maximum number of messages allowed in a folder in the "Recoverable items" folder.
DumpsterMessagesPerFolderCountWarningQuota	Number of item a folder in the "Recoverable items" folder can contain before a warning is sent to the user.
ItemCount	Number of messages in this mailbox (email, calendar, contacts for example) visible to the user.
LastLoggedOnUserAccount	Name of the last logged on user.
LastLogOffTime	Last log off time
LastLogonTime	Last log on time
StorageLimitStatus	Information about the current storage state with respect to the specified limits.
TotalDeletedItemSize	Size of items in the "Recoverable Items" mailbox.
TotalItemSize	Size of items in mailbox in KB.

NOTE: The mailbox usage information is only available for user or shared mailboxes.

Number of external slots for the Job server configuration

Since the number of concurrent connections for Exchange Online is limited to three, you should use a dedicated Job server with a reduced number of external execution slots (not more than two). You will get an error message if too many connections are open at the same time.

You can set the number of connections for each connection parameter set and customize the connector definition. For more information, see [Advanced settings for the Exchange Online connector](#) on page 22.

Customizing synchronization configuration

You have used the Synchronization Editor to set up a synchronization project for initial synchronization with Exchange Online. You can use this synchronization project to load Exchange Online objects into the One Identity Manager database. When you manage mailboxes, email users, email contacts, mail-enabled distribution groups, and Office 365 groups with One Identity Manager, modifications are provisioned in the Exchange Online system.

You must customize the synchronization configuration in order to compare the One Identity Manager database with the Exchange Online regularly and to synchronize changes.

- You can use variables to create generally applicable synchronization configurations that contain the necessary information about the synchronization objects when synchronization starts. Variables can be implemented in base objects, schema classes, or processing method, for example.
- To specify which Exchange Online objects and database object are included in synchronization, edit the scope of the target system connection and the One Identity Manager database connection. To prevent data inconsistencies, define the same scope in both systems. If no scope is defined, all objects will be synchronized.
- Update the schema in the synchronization project if the One Identity Manager schema or target system schema has changed. Then you can add the changes to the mapping.

IMPORTANT: As long as synchronization is running, you must not start another synchronization for the same target system. This applies especially, if the same synchronization objects would be processed.

- If another synchronization is started with the same start up configuration, this process is stop and is assigned the **Frozen** execution status. An error message is written to the One Identity Manager Service log file.
- If another synchronization is started with another start up configuration, that addresses same target system, it may lead to synchronization error or loss of data. Specify One Identity Manager behavior in this case, in the start up configuration.
 - Use the schedule to ensure that the start up configurations are executed in sequence.
 - Group start up configurations with the same start up behavior.

For detailed information about configuring synchronization, see the One Identity Manager Target System Synchronization Reference Guide.

Detailed information about this topic

- [How to configure Exchange Online synchronization](#) on page 28
- [Updating schemas](#) on page 29

How to configure Exchange Online synchronization

The synchronization project for initial synchronization provides a workflow for initial loading of target system objects (initial synchronization) and one for provisioning object modifications from the One Identity Manager database to the target system (provisioning). To use One Identity Manager as the master system during synchronization, you also require a workflow with synchronization in the direction of the **Target system**.

To create a synchronization configuration for synchronizing Exchange Online

1. Open the synchronization project in the Synchronization Editor.
2. Check whether existing mappings can be used for synchronizing the target system. Create new maps if required.
3. Create a new workflow with the workflow wizard.
Creates a workflow with **Target system** as its synchronization direction.
4. Create a new start up configuration. Use the new workflow to do this.
5. Save the changes.
6. Run a consistency check.

Updating schemas

All the schema data (schema types and schema properties) of the target system schema and the One Identity Manager schema are available when you are editing a synchronization project. Only a part of this data is really needed for configuring synchronization. If a synchronization project is finished, the schema is compressed to remove unnecessary data from the synchronization project. This can speed up loading the synchronization project. Deleted schema data can be added to the synchronization configuration again at a later point.

If the target system schema or the One Identity Manager schema has changed, these changes must also be added to the synchronization configuration. Then the changes can be added to the schema property mapping.

To include schema data that have been deleted through compressing and schema modifications in the synchronization project, update each schema in the synchronization project. This may be necessary if:

- A schema was changed by:
 - Changes to a target system schema
 - Customizations to the One Identity Manager schema
 - A One Identity Manager update migration
- A schema in the synchronization project was shrunk by:
 - enabling the synchronization project
 - saving the synchronization project for the first time
 - compressing a schema

To update a system connection schema

1. Open the synchronization project in the Synchronization Editor.
2. Select **Configuration | Target system**.
- OR -
Select **Configuration | One Identity Manager Connection**.
3. Select the view **General** and click **Update schema**.
4. Confirm the security prompt with **Yes**.
This reloads the schema data.

To edit a mapping

1. Open the synchronization project in the Synchronization Editor.
2. Select the category **Mappings**.
3. Select a mapping in the navigation view.

Opens the Mapping Editor. For more detailed information about mappings, see the *One Identity Manager Target System Synchronization Reference Guide*.

NOTE: The synchronization is deactivated if the schema of an activated synchronization project is updated. Reactivate the synchronization project to synchronize.

Post-processing outstanding objects

Objects, which do not exist in the target system, can be marked as outstanding in One Identity Manager by synchronizing. This prevents objects being deleted because of an incorrect data situation or an incorrect synchronization configuration.

Outstanding objects

- Cannot be edited in One Identity Manager.
- Are ignored by subsequent synchronization.
- Are ignored by inheritance calculations.

This means, all memberships and assignments remain intact until the outstanding objects have been processed.

Start target system synchronization to do this.

To post-process outstanding objects

1. In Manager, select the **Azure Active Directory | Target system synchronization: Exchange Online** category.

All tables assigned to the target system type **Exchange Online** as synchronization tables are displayed in the navigation view.

2. On the **Target system synchronization** form, in the **Table / object** column, open the node of the table for which you want to post-process outstanding objects.

All objects that are marked as outstanding are shown. The **Last log entry** and **Last method run** columns display the time at which the last entry was made in the synchronization log and which processing method was executed. The **No log available** entry can mean the following:

- The synchronization log has already been deleted.
- OR -
- An assignment from a member list has been deleted in the target system.
The base object of the assignment has been updated during the synchronization. A corresponding entry appears in the synchronization log. The entry in the assignment table is marked as outstanding, but there is no entry in the synchronization log.
- An object that contains a member list has been deleted in the target system.
During synchronization, the object and all corresponding entries in assignment tables are marked as outstanding. However, an entry in the synchronization log appears only for the deleted object.

TIP:

To display object properties of an outstanding object

- a. Select the object on the target system synchronization form.
 - b. Open the context menu and click **Show object**.
3. Select the objects you want to rework. Multi-select is possible.
 4. Click one of the following icons in the form toolbar to execute the respective method.

Table 9: Methods for handling outstanding objects

Icon	Method	Description
	Delete	The object is immediately deleted in the One Identity Manager database. Deferred deletion is not taken into account. The Outstanding label is removed for the object. Indirect memberships cannot be deleted.
	Publish	The object is added in the target system. The Outstanding label is removed for the object. The method triggers the HandleOutstanding event. This runs a target system specific process that triggers the provisioning process for the object. Prerequisites: <ul style="list-style-type: none">• The table containing the object can be published.• The target system connector has write access to the target system.
	Reset	The Outstanding label is removed for the object.

5. Confirm the security prompt with **Yes**.

NOTE: By default, the selected objects are processed in parallel, which speeds up execution of the selected method. If an error occurs during processing, the action is stopped and all changes are discarded.

Bulk processing of objects must be disabled if errors are to be localized, which means the objects are processed sequentially. Failed objects are named in the error message. All changes that were made up until the error occurred are saved.

To disable bulk processing

- Deactivate  in the form toolbar.

You must customize synchronization to synchronize custom tables.

To add custom tables to the target system synchronization

1. In Manager, select **Azure Active Directory | Basic configuration data | Target system types**.
2. In the result list, select the target system type **Exchange Online**.
3. Select **Assign synchronization tables**.
4. Assign custom tables whose outstanding objects you want to handle in **Add assignments**.
5. Save the changes.
6. Select **Configure tables for publishing**.
7. Select custom tables whose outstanding objects can be published in the target system and set **Publishable**.
8. Save the changes.

NOTE: The target system connector must have write access to the target system in order to publish outstanding objects that are being post-processed. That means, the option **Connection is read only** must not be set for the target system connection.

Configuring the provisioning of memberships

Memberships, for example, user accounts in groups, are saved in assignment tables in the One Identity Manager database. During provisioning of modified memberships, changes made in the target system will probably be overwritten. This behavior can occur under the following conditions:

- Memberships are saved in the target system as an object property in list form.
- Memberships can be modified in either of the connected systems.
- A provisioning workflow and provisioning processes are set up.

If a membership in One Identity Manager changes, the complete list of members is transferred to the target system by default. Memberships, previously added to the target system are removed by this; previously deleted memberships are added again.

To prevent this, provisioning can be configured such that only the modified membership is provisioned in the target system. The corresponding behavior is configured separately for each assignment table.

To allow separate provisioning of memberships

1. In Manager, select **Azure Active Directory | Basic configuration data | Target system types**.
2. Select **Exchange Online** in the result list.

3. Select **Configure tables for publishing**.
4. Select the assignment tables for which you want to allow separate provisioning. Multi-select is possible.
 - This option can only be enabled for assignment tables that have a base table with XDateSubItem or CCC_XDateSubItem column.
 - Assignment tables that are grouped together in a virtual schema property in the mapping must be marked identically.
5. Click **Enable merging**.
6. Save the changes.

For each assignment table labeled like this, the changes made in One Identity Manager are saved in a separate table. During modification provisioning, the members list in the target system is compared to the entries in this table. This means that only modified memberships are provisioned and the members list does not get entirely overwritten.

NOTE: The complete members list is updated by synchronization. During this process, objects with changes but incomplete provisioning are not handled. These objects are logged in the synchronization log.

For more detailed information about provisioning memberships, see the One Identity Manager Target System Synchronization Reference Guide.

Help for the analysis of synchronization issues

You can generate a report for analyzing problems which occur during synchronization, for example, insufficient performance. The report contains information such as:

- Consistency check results
- Revision filter settings
- Scope applied
- Analysis of the synchronization buffer
- Object access times in the One Identity Manager database and in the target system

To generate a synchronization analysis report

1. Open the synchronization project in the Synchronization Editor.
2. Select the menu **Help | Generate synchronization analysis report** and answer the security prompt with **Yes**.

The report may take a few minutes to generate. It is displayed in a separate window.

3. Print the report or save it in one of the available output formats.

Deactivating synchronization

Regular synchronization cannot be started until the synchronization project and the schedule are active.

To prevent regular synchronization

1. Open the synchronization project in the Synchronization Editor.
2. Select the start up configuration and deactivate the configured schedule.

Now you can only start synchronization manually.

An activated synchronization project can only be edited to a limited extent. The schema in the synchronization project must be updated if schema modifications are required. The synchronization project is deactivated in this case and can be edited again.

Furthermore, the synchronization project must be deactivated if synchronization should not be started by any means (not even manually).

To deactivate the synchronization project

1. Open the synchronization project in the Synchronization Editor.
2. Select **General** on the start page.
3. Click **Deactivate project**.

Related topics

- [Creating a synchronization project for initial synchronization of an Exchange Online environment](#) on page 16

Basic data for managing an Exchange Online environment

To manage an Exchange Online environment in One Identity Manager, the following basic data is relevant.

- Configuration parameters

Use configuration parameters to configure the behavior of the system's basic settings. One Identity Manager provides default settings for different configuration parameters. Check the configuration parameters and modify them as necessary to suit your requirements.

Configuration parameters are defined in the One Identity Manager modules. Each One Identity Manager module can also install configuration parameters. You can find an overview of all configuration parameters in **Base data | General | Configuration parameters** in Designer.

For more information, see [Appendix: Configuration parameters for managing Exchange Online](#) on page 58.

- Account definitions

One Identity Manager has account definitions for automatically allocating user accounts to employees during working hours. You can create account definitions for every target system. If an employee does not yet have a user account in a target system, a new user account is created. This is done by assigning account definitions to an employee.

For more information, see [Setting up account definitions](#) on page 36.

- Target system types

Target system types are required for configuring target system comparisons. Tables containing outstanding objects are maintained on target system types.

For more information, see [Post-processing outstanding objects](#) on page 30.

- Target system managers

A default application role exists for the target system manager in One Identity Manager. Assign the employees who are authorized to edit all Exchange Online objects in One Identity Manager to this application role.

ns for target system managers to individual farms.SharePoint Define additional application roles if you want to limit the edit permissions for target system managers to individual tenants with Exchange Online. The application roles must be added under the default application role.

For more information, see [Target system managers](#) on page 55.

Setting up account definitions

One Identity Manager has account definitions for automatically allocating user accounts to employees during working hours. You can create account definitions for every target system. If an employee does not yet have a user account in a target system, a new user account is created. This is done by assigning account definitions to an employee.

The data for the user accounts in the respective target system comes from the basic employee data. The employee must own a user account. The assignment of the IT operating data to the employee's user account is controlled through the primary assignment of the employee to a location, a department, a cost center, or a business role (template processing). Processing is done through templates. There are predefined templates for determining the data required for user accounts included in the default installation. You can customize templates as required.

For detailed information about account definitions, see the *One Identity Manager Target System Base Module Administration Guide*.

The following steps are required to implement an account definition:

- [Creating an account definition](#)
- [Setting up manage levels](#)
- [Creating a mapping rule for IT operating data](#)
- [Determining IT operating data](#)
- [Assigning account definitions to employees](#)
- [Assigning account definitions to a target system](#)

Creating an account definition

To create a new account definition

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
2. Select an account definition in the result list. Select **Change master data**.
-OR-
Click  in the result list.

3. Enter the account definition's master data.
4. Save the changes.

NOTE: Exchange Online mailboxes are generated or deleted through the assignment or removal of licenses through Azure Active Directory subscriptions in the Azure Active Directory Module. For more information, see the One Identity Manager Administration Guide for Connecting to Azure Active Directory.

Detailed information about this topic

- [Master data for an account definition](#) on page 37

Related topics

[Appendix: Editing system objects](#)

Master data for an account definition

Enter the following data for an account definition:

Table 10: Master data for an account definition

Property	Description
Account definition	Account definition name.
User account table	Table in the One Identity Manager schema that maps user accounts.
Target system	Target system to which the account definition applies.
Required account definition	Required account definition. Define the dependencies between account definitions. When this account definition is requested or assigned, the required account definition is automatically requested or assigned with it. Leave empty for Exchange Online.
Description	Spare text box for additional explanation.
Manage level (initial)	Manage level to use by default when you add new user accounts.
Risk index	Value for evaluating the risk of account definition assignments to employees. Enter a value between 0 and 1. This input field is only visible if the configuration parameter QER CalculateRiskIndex is activated.

Property	Description
	For more detailed information, see the <i>One Identity Manager Risk Assessment Administration Guide</i> .
Service item	Service item through which you can request the account definition in the IT Shop. Assign an existing service item or add a new one.
IT Shop	Specifies whether the account definition can be requested through the IT Shop. The account definition can be ordered by an employee over the Web Portal and distributed using a defined approval process. The can also be assigned directly to employees and roles outside of IT Shop.
Only for use in IT Shop	Specifies whether the account definition can only be requested through the IT Shop. The account definition can be ordered by an employee over the Web Portal and distributed using a defined approval process. This means, the account definition cannot be directly assigned to roles outside the IT Shop.
Automatic assignment to employees	<p>Specifies whether the account definition is assigned automatically to all internal employees. The account definition is assigned to every employee not marked as external, on saving. New employees automatically obtain this account definition as soon as they are added.</p> <p>i IMPORTANT: Only set this option if you can ensure that all current internal employees in the database and all pending newly added internal employees obtain a user account in this target system.</p> <p>Disable this option to remove automatic assignment of the account definition to all employees. The account definition cannot be reassigned to employees from this point on. Existing account definition assignments remain intact.</p>
Retain account definition if permanently disabled	<p>Specifies the account definition assignment to permanently disabled employees.</p> <p>Option set: the account definition assignment remains in effect. The user account stays the same.</p> <p>Option not set: the account definition assignment is not in effect. The associated user account is deleted.</p>
Retain account definition if temporarily disabled	<p>Specifies the account definition assignment to temporarily disabled employees.</p> <p>Option set: the account definition assignment remains in effect. The user account stays the same.</p> <p>Option not set: the account definition assignment is not in effect. The associated user account is deleted.</p>
Retain account	Specifies the account definition assignment on deferred deletion of employees.

Property	Description
definition on deferred deletion	Option set: the account definition assignment remains in effect. The user account stays the same. Option not set: the account definition assignment is not in effect. The associated user account is deleted.
Retain account definition on security risk	Specifies the account definition assignment to employees posing a security risk. Option set: the account definition assignment remains in effect. The user account stays the same. Option not set: the account definition assignment is not in effect. The associated user account is deleted.
Resource type	Resource type for grouping account definitions.
Spare field 01 - spare field 10	Additional company specific information. Use Designer to customize display names, formats and templates for the input fields.

Setting up manage levels

Specify the manage level for an account definition for managing user accounts. The user account's manage level specifies the extent of the employee's properties that are inherited by the user account. This allows an employee to have several user accounts in one target system, for example:

- Default user account that inherits all properties from the employee
- Administrative user account that is associated to an employee but should not inherit the properties from the employee.

One Identity Manager supplies a default configuration for manage levels:

- **Unmanaged:** User accounts with the **Unmanaged** manage level are linked to the employee but they do not inherit any further properties. When a new user account is added with this manage level and an employee is assigned, some of the employee's properties are transferred initially. If the employee properties are changed at a later date, the changes are not passed onto the user account.
- **Full managed:** User accounts with the **Full managed** manage level inherit defined properties of the assigned employee. When a new user account is created with this manage level and an employee is assigned, the employee's properties are transferred in an initial state. If the employee properties are changed at a later date, the changes are passed onto the user account.

NOTE: The **Full managed** and **Unmanaged** are analyzed in templates. You can customize the supplied templates in the Designer.

You can define other manage levels depending on your requirements. You need to amend the templates to include manage level approaches.

Specify the effect of temporarily or permanently disabling, deleting or the security risk of an employee on its user accounts and group memberships for each manage level. For detailed information about manage levels, see the *One Identity Manager Target System Base Module Administration Guide*.

- Employee user accounts can be locked when they are disabled, deleted or rated as a security risk so that permissions are immediately withdrawn. If the employee is reinstated at a later date, the user accounts are also reactivated.
- You can also define group membership inheritance. Inheritance can be discontinued if desired when, for example, the employee's user accounts are disabled and therefore cannot be members in groups. During this time, no inheritance processes should be calculated for this employee. Existing group memberships are deleted!

To assign manage levels to an account definition

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
2. Select an account definition in the result list.
3. Select **Assign manage level**.
4. Assign the manage levels in **Add assignments**.
- OR -
Delete the manage levels in **Remove assignments**.
5. Save the changes.

IMPORTANT: The **Unmanaged** manage level is assigned automatically when you create an account definition and it cannot be removed.

To edit a manage level

1. Select **Azure Active Directory | Basic configuration data | Account definitions | Manage levels**.
2. Select the manage level in the result list. Select **Change master data**.
-OR-
Click  in the result list.
3. Edit the manage level's master data.
4. Save the changes.

Related topics

- [Master data for a manage level](#) on page 41

Master data for a manage level

Enter the following data for a manage level.

Table 11: Master data for manage levels

Property	Description
Manage level	Name of the manage level.
Description	Spare text box for additional explanation.
IT operating data overwrites	Specifies whether user account data formatted from IT operating data is automatically updated. Permitted values are: <ul style="list-style-type: none">• Never: Data is not updated.• Always: Data is always updated.• Only initially: The data is only determined at the start.
Retain groups if temporarily disabled	Specifies whether user accounts of temporarily disabled employees retain their group memberships.
Lock user accounts if temporarily disabled	Specifies whether user accounts of temporarily disabled employees are locked.
Retain groups if permanently disabled	Specifies whether user accounts of permanently disabled employees retain group memberships.
Lock user accounts if permanently disabled	Specifies whether user accounts of permanently disabled employees are locked.
Retain groups on deferred deletion	Specifies whether user accounts of employees marked for deletion retain their group memberships.
Lock user accounts if deletion is deferred	Specifies whether user accounts of employees marked for deletion are locked.
Retain groups on security risk	Specifies whether user accounts of employees posing a security risk retain their group memberships.
Lock user accounts if security is at risk	Specifies whether user accounts of employees posing a security risk are locked.
Retain groups if user account disabled	Specifies whether locked user accounts retain their group memberships.

Creating a mapping rule for IT operating data

An account definition specifies which rules are used to form the IT operating data and which default values will be used if no IT operating data can be found through the employee's primary roles.

The following IT operating data is used in the One Identity Manager default configuration for automatic creating and modifying of user accounts for an employee in the target system.

- Groups can be inherited

To create a mapping rule for IT operating data

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
2. Select an account definition in the result list.

3. Select **Edit IT operating data mapping** and enter the following data.

Table 12: Mapping rule for IT operating data

Property	Description
Column	User account property for which the value is set. In the menu, you can select the columns that use the <code>TSB_ITDataFromOrg</code> script in their template. For detailed information, see the <i>One Identity Manager Target System Base Module Administration Guide</i> .
Source	<p>Specifies which roles to use in order to find the user account properties. You have the following options:</p> <ul style="list-style-type: none"> • Primary department • Primary location • Primary cost center • Primary business roles <p>i NOTE: Only use the primary business role if the Business Roles Module is installed.</p> <ul style="list-style-type: none"> • Empty <p>If you select a role, you must specify a default value and set the option Always use default value.</p>
Default value	Default value of the property for an employee's user account if the value is not determined dynamically from the IT operating data.
Always use default value	Specifies whether user account properties are always filled with the default value. IT operating data is not determined dynamically from a role.
Notify when applying the standard	Specifies whether email notification to a defined mailbox is sent when the default value is used. The Employee - new user account with default properties created mail template is used. To change the mail template, adjust the TargetSystem AzureAD ExchangeOnline Accounts MailTemplateDefaultValues configuration parameter.

4. Save the changes.

Related topics

- [Determining IT operating data](#) on page 44

Determining IT operating data

To create user accounts with the **Full managed** manage level, the required IT operating data must be determined. The operating data required to automatically supply an employee with IT resources is shown in the business roles, departments, locations or cost centers. An employee is assigned a primary business role, primary location, primary department or primary cost center. The necessary IT operating data is ascertained from these assignments and used in creating the user accounts. Default values are used if valid IT operating data cannot be found over the primary roles.

You can also specify IT operating data directly for a specific account definition.

Example

Normally, each employee in department A obtains a default user account in the tenantA. In addition, certain employees in department A obtain administrative user accounts in the tenantA.

Create an account definition A for the default user account of the A and an account definition B for the administrative user account of tenant A. Specify the property "Department" in the IT operating data formatting rule for the account definitions A and B in order to determine the valid IT operating data.

Specify the effective IT operating data of department A for the tenant A. This IT operating data is used for standard user accounts. In addition, specify the effective account definition B IT operating data for department A. This IT operating data is used for administrative user accounts.

To define IT operating data

1. In Manager, select the role in the **Organizations** or **Business roles** category.
2. Select the **Edit IT operating data** task.

3. Click **Add** and enter the following data.

Table 13: IT operating data

Property	Description
Effects on	<p>IT operating data application scope. The IT operating data can be used for a target system or a defined account definition.</p> <p>To specify an application scope</p> <ol style="list-style-type: none">a. Click → next to the text box.b. Under Table, select the table that maps the target system for select the TSBAccountDef table for an account definition.c. Select the specific target system or account definition under Effects on.d. Click OK.
Column	<p>User account property for which the value is set.</p> <p>In the menu, you can select the columns that use the TSB_ITDataFromOrg script in their template. For detailed information, see the <i>One Identity Manager Target System Base Module Administration Guide</i>.</p>
Value	<p>Concrete value which is assigned to the user account property.</p>

4. Save the changes.

Related topics

- [Creating a mapping rule for IT operating data](#) on page 42

Modify IT operating data

If IT operating data changes, you must transfer these changes to the existing user accounts. To do this, templates must be rerun on the affected columns. Before you can run the templates, you can check what effect a change to the IT operating data has on the existing user accounts. You can decide whether the change is transferred to the One Identity Manager database in the case of each affected column in each affected database.

Prerequisites

- The IT operating data of a department, cost center, business role, or a location was changed.
- OR -
- The default values in the IT operating data template were modified for an account definition.

- NOTE:** If the assignment of an employee to a primary department, cost center, business role or to a primary location changes, the templates are automatically executed.

To execute the template

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
2. Select an account definition in the result list.
3. Select **Execute templates** in the task view

This displays a list of all user account, which are created through the selected account definition and whose properties are changed by modifying the IT operating data.

Old value: Current value of the object property.

New value: Value that the object property would have following modification of the IT operating data.

Selection: Specifies whether the modification shall be adopted for the user account.

4. Mark all the object properties in the **selection** column that will be given the new value.
5. Click **Apply**.

The templates are applied to all selected user accounts and properties.

Assigning account definitions to employees

Account definitions are assigned to company employees.

Indirect assignment is the default method for assigning account definitions to employees. Account definitions are assigned to departments, cost centers, locations or roles. The employees are categorized into these departments, cost centers, locations or roles depending on their function in the company and thus obtain their account definitions. To react quickly to special requests, you can assign individual account definitions directly to employees.

You can automatically assign special account definitions to all company employees. It is possible to assign account definitions to the IT Shop as requestable products. A department manager can then request user accounts from the Web Portal for his staff. It is also possible to add account definitions to system roles. These system roles can be assigned to employees through hierarchical roles or directly or added as products in the IT Shop.

In the One Identity Manager default installation, the processes are checked at the start to see if the employee already has a user account in the target system that has an account

definition. If no user account exists, a new user account is created with the account definition's default manage level.

- 1 **NOTE:** If a user account already exists and is disabled, then it is re-enabled. You have to alter the user account manage level afterwards in this case.

Prerequisites for indirect assignment of account definitions to employees

- Assignment of employees and account definitions is permitted for role classes (department, cost center, location or business role).

- 1 **NOTE:** As long as an account definition for an employee is valid, the employee retains the user account that was created by it. If the assignment of an account definition is removed, the user account that was created from this account definition is deleted.

For detailed information about preparing role classes to be assigned, see the *One Identity Manager Identity Management Base Module Administration Guide*.

Detailed information about this topic

- [Assigning account definitions to departments, cost centers, and locations](#) on page 47
- [Assigning account definitions to business roles](#) on page 48
- [Assigning account definitions to all employees](#) on page 49
- [Assigning account definitions directly to employees](#) on page 49
- [Assigning account definitions to a target system](#) on page 52

Assigning account definitions to departments, cost centers, and locations

To add account definitions to hierarchical roles

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
2. Select an account definition in the result list.
3. Select **Assign organizations**.
4. Assign organizations in **Add assignments**.
 - Assign departments on the **Departments** tab.
 - Assign locations on the **Locations** tab.
 - Assign cost centers on the **Cost centers** tab.

TIP: In the **Remove assignments** area, you can remove the assignment of organizations.

To remove an assignment

- Select the organization and double click .

5. Save the changes.

Related topics

- [Assigning account definitions to business roles](#) on page 48
- [Assigning account definitions to business roles](#) on page 48
- [Assigning account definitions directly to employees](#) on page 49

Assigning account definitions to business roles

Installed modules: Business Roles Module

To add account definitions to hierarchical roles

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
2. Select an account definition in the result list.
3. Select **Assign business roles** in the task view.
4. Assign business roles in **Add assignments**.

TIP: In the **Remove assignments** area, you can remove the assignment of business roles.

To remove an assignment

- Select the business role and double click .

5. Save the changes.

Related topics

- [Assigning account definitions to departments, cost centers, and locations](#) on page 47
- [Assigning account definitions to all employees](#) on page 49
- [Assigning account definitions directly to employees](#) on page 49

Assigning account definitions to all employees

To assign an account definition to all employees

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
2. Select an account definition in the result list.
3. Select **Change master data**.
4. Set **Automatic assignment to employees on General**.
 - ❗ **IMPORTANT:** Only set this option if you can ensure that all current internal employees in the database and all pending newly added internal employees obtain a user account in this target system.
5. Save the changes.

The account definition is assigned to every employee that is not marked as external. New employees automatically obtain this account definition as soon as they are added. The assignment is calculated by the DBQueue Processor.

- ❗ **NOTE:** Disable **Automatic assignment to employees** to remove automatic assignment of the account definition to all employees. The account definition cannot be reassigned to employees from this point on. Existing assignments remain intact.

Related topics

- [Assigning account definitions to departments, cost centers, and locations](#) on page 47
- [Assigning account definitions to business roles](#) on page 48
- [Assigning account definitions directly to employees](#) on page 49

Assigning account definitions directly to employees

To assign an account definition directly to employees

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
2. Select an account definition in the result list.
3. Select **Assign to employees** in the task view.

4. Assign employees in **Add assignments**.

TIP: In the **Remove assignments** area, you can remove the assignment of employees.

To remove an assignment

- Select the employee and double-click .

5. Save the changes.

Related topics

- [Assigning account definitions to departments, cost centers, and locations](#) on page 47
- [Assigning account definitions to business roles](#) on page 48
- [Assigning account definitions to all employees](#) on page 49

Assigning account definitions to system roles

Installed modules: System Roles Module

TIP: Account definitions with **Only use in IT Shop** can only be assigned to system roles that also have this option set.

To add account definitions to a system role

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
2. Select an account definition in the result list.
3. Select **Assign system roles in the task view**.
4. Assign system roles in **Add assignments**.

TIP: In the **Remove assignments** area, you can remove the assignment of system roles.

To remove an assignment

- Select the system role and double click .

5. Save the changes.

Adding account definitions in the IT Shop

A account definition can be requested by shop customers when it is assigned to an IT Shop shelf. To ensure it can be requested, further prerequisites need to be guaranteed.

- The account definition must be labeled with the **IT Shop** option.
- The account definition must be assigned to a service item.
 - ① **TIP:** In Web Portal, all products that can be requested are grouped together by service category. To make the account definition easier to find in Web Portal, assign a service category to the service item.
- If the account definition is only assigned to employees using IT Shop assignments, you must also set **Only for use in IT Shop**. Direct assignment to hierarchical roles may not be possible.
- ① **NOTE:** IT Shop administrators can assign account definitions to IT Shop shelves if login is role-based. Target system administrators are not authorized to add account definitions in the IT Shop.

To add an account definition to the IT Shop

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions** (non-role-based login).
 - OR -
 - In Manager, select **Entitlements | Account definitions** (role-based login).
2. Select an account definition in the result list.
3. Select **Add to IT Shop**.
4. Assign the account definitions to the IT Shop shelves in **Add assignments**.
5. Save the changes.

To remove an account definition from individual IT Shop shelves

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions** (non-role-based login).
 - OR -
 - In Manager, select **Entitlements | Account definitions** (role-based login).
2. Select an account definition in the result list.
3. Select **Add to IT Shop**.
4. Remove the account definitions from the IT Shop shelves in **Remove assignments**.
5. Save the changes.

To remove an account definition from all IT Shop shelves

1. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions** (non-role-based login).
 - OR -
 - In Manager, select **Entitlements | Account definitions** (role-based login).
2. Select an account definition in the result list.
3. Select **Remove from all shelves (IT Shop)**.

4. Confirm the security prompt with **Yes**.
5. Click **OK**.

The account definition is removed from all shelves by One Identity Manager Service. All requests and assignment requests with this account definition are canceled in the process.

For more detailed information about request from company resources through the IT Shop, see the *One Identity Manager IT Shop Administration Guide*.

Related topics

- [Master data for an account definition](#) on page 37
- [Assigning account definitions to departments, cost centers, and locations](#) on page 47
- [Assigning account definitions to business roles](#) on page 48
- [Assigning account definitions directly to employees](#) on page 49
- [Assigning account definitions to system roles](#) on page 50

Assigning account definitions to a target system

The following prerequisites must be fulfilled if you implement automatic assignment of user accounts and employees resulting in administered user accounts (state **Linked configured**):

- The account definition is assigned to the target system.
- The account definition has the default manage level.

User accounts are only linked to the employee (**Linked**) if no account definition is given. This is the case on initial synchronization, for example.

To assign the account definition to a target system

1. In Manager, select the tenant in **Azure Active Directory | Tenants**.
2. Select **Change master data**.
3. Select the account definition for user accounts from **Account definition (initial)**.
4. Select the account definition for email contacts from **E-mail contact definition (initial)**.
5. Select the account definition for email users from **E-mail user definition (initial)**.
6. Save the changes.

Related topics

- [Assigning account definitions to employees](#) on page 46

Deleting an account definition

You can delete account definitions if they are not assigned to target systems, employees, hierarchical roles or any other account definitions.

To delete an account definition

1. Remove automatic assignments of the account definition from all employees.
 - a. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
 - b. Select an account definition in the result list.
 - c. Select **Change master data**.
 - d. Disable **Automatic assignment to employees** on the **General** tab.
 - e. Save the changes.
2. Remove direct assignments of the account definition to employees.
 - a. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
 - b. Select an account definition in the result list.
 - c. Select **Assign to employees** in the task view.
 - d. Remove employees from **Remove assignments**.
 - e. Save the changes.
3. Remove the account definition's assignments to departments, cost centers and locations.
 - a. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
 - b. Select an account definition in the result list.
 - c. Select **Assign organizations**.
 - d. In **Remove assignments**, remove the relevant departments, cost centers, and locations.
 - e. Save the changes.
4. Remove the account definition's assignments to business roles.
 - a. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
 - b. Select an account definition in the result list.
 - c. Select **Assign business roles**.
Remove the business roles in **Remove assignments**.
 - d. Save the changes.
5. If the account definition was requested through the IT Shop, it must be canceled and

removed from all IT Shop shelves.

For more detailed information about unsubscribing requests, see the *One Identity Manager Web Portal User Guide*.

To remove an account definition from all IT Shop shelves

- a. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions** (non-role-based login).

- OR -

In Manager, select **Entitlements | Account definitions** (role-based login).

- b. Select an account definition in the result list.
- c. Select **Remove from all shelves (IT Shop)**.
- d. Confirm the security prompt with **Yes**.
- e. Click **OK**.

The account definition is removed from all shelves by One Identity Manager Service. All requests and assignment requests with this account definition are canceled in the process.

6. Remove the account definition assignment as required account definition for another account definition. As long as the account definition is required for another account definition, it cannot be deleted. Check all the account definitions.
 - a. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
 - b. Select an account definition in the result list.
 - c. Select **Change master data**.
 - d. Remove the account definition in the **Required account definition** menu.
 - e. Save the changes.
7. Remove the account definition's assignments to target systems.
 - a. In Manager, select the tenant in **Azure Active Directory | Tenants**.
 - b. Select **Change master data**.
 - c. Remove the assigned account definitions on the **General** tab.
 - d. Save the changes.
8. Delete the account definition.
 - a. In Manager, select **Azure Active Directory | Basic configuration data | Account definitions | Account definitions**.
 - b. Select an account definition in the result list.
 - c. Click  to delete an account definition.

Target system managers

A default application role exists for the target system manager in One Identity Manager. Assign the employees who are authorized to edit all Exchange Online objects in One Identity Manager to this application role.

ns for target system managers to individual farms.SharePoint Define additional application roles if you want to limit the edit permissions for target system managers to individual tenants with Exchange Online. The application roles must be added under the default application role.

For detailed information about implementing and editing application roles, see the *One Identity Manager Authorization and Authentication Guide*.

Implementing application roles for target system managers

1. The One Identity Manager administrator assigns employees to be target system managers.
2. These target system managers add employees to the default application role for target system managers.
Target system managers with the default application role are authorized to edit all Exchange Online objects in One Identity Manager.
3. Target system managers can authorize other employees within their area of responsibility as target system managers and if necessary, create additional child application roles and assign these to individual tenants.

Table 14: Default Application Roles for Target System Managers

User	Tasks
Target system managers	<p>Target system managers must be assigned to Target systems Exchange Online or a sub-application role.</p> <p>Users with this application role:</p> <ul style="list-style-type: none">• Assume administrative tasks for the target system.• Create, change or delete target system objects, like user accounts or groups.• Edit password policies for the target system.• Prepare groups for adding to the IT Shop.• Can add employees, who have an other identity than the Primary identity.• Configure synchronization in the Synchronization Editor and defines the mapping for comparing target systems and One Identity Manager.• Edit the synchronization's target system types and outstanding

User	Tasks
	<p>objects.</p> <ul style="list-style-type: none"> • Authorize other employees within their area of responsibility as target system managers and create child application roles if required.

To initially specify employees to be target system administrators

1. Log in to One Identity Manager as Manager administrator (**Base role | Administrators**)
2. Select **One Identity Manager Administration | Target systems | Administrators**.
3. Select **Assign employees**.
4. Assign the employee you want and save the changes.

To add the first employees to the default application as target system managers.

1. Log yourself into Manager as target system administrator (**Target systems | Administrators**).
2. Select **One Identity Manager Administration | Target systems | Exchange Online**.
3. Select **Assign employees** in the task view.
4. Assign the employees you want and save the changes.

To authorize other employees as target system managers when you are a target system manager

1. Login to Manager as target system manager.
2. Select the application role in Azure Active Directory | **Basic configuration data | Target system managers**.
3. Select **Assign employees**.
4. Assign the employees you want and save the changes.

To specify target system managers for individual tenants.

1. Log in to Manager as target system manager.
 2. Select **Azure Active Directory | Tenants**.
 3. Select the tenant in the result list.
 4. Select **Change master data**.
 5. On the **General** tab, select the application role in the **Target system manager (Exchange Online)** menu.
- OR -

Next to the **Target system manager (Exchange Online)** menu, click  to create a new application role.

- a. Enter the application role name and assign the **Target systems | Exchange Online** parent application role.
 - b. Click **OK** to add the new application role.
6. Save the changes.
 7. Assign employees to this application role who are permitted to edit the tenant in One Identity Manager.

Related topics

- [One Identity Manager users for managing an Exchange Online environment](#) on page 6

Appendix: Configuration parameters for managing Exchange Online

The following configuration parameters are additionally available in One Identity Manager after the module has been installed.

Table 15: Configuration parameters for managing an Exchange Online environment

Configuration parameter	Meaning
TargetSystem\AzureAD\ExchangeOnline	Preprocessor relevant configuration parameter for controlling the database model components for the administration of the target system Exchange Online. If the parameter is set, the target system components are available. Changes to the parameter require recompiling the database.
TargetSystem\AzureAD\ExchangeOnline\Accounts	This configuration parameter permits configuration of recipient data.
TargetSystem\AzureAD\ExchangeOnline\Accounts\MailTemplateDefaultValues	This configuration parameter contains the mail template used to send notifications if default IT operating data mapping values are used for automatically creating a user account. The Employee - new user account with default properties created mail template is used.

Configuration parameter**Meaning**

TargetSystem\AzureAD\ExchangeOnline\DefaultAddress	The configuration parameter contains the recipient's default email address for sending notifications about actions in the target system.
--	--

Appendix: Default project template for Exchange Online

A default project template ensures that all required information is added in One Identity Manager. This includes mappings, workflows and the synchronization base object. If you do not use a default project template you must declare the synchronization base object in One Identity Manager yourself.

Use a default project template for initially setting up the synchronization project. For custom implementations, you can extend the synchronization project with the Synchronization Editor.

The template uses mappings for the following schema types.

Table 16: Mapping Exchange Online schema types to tables in the One Identity Manager schema.

Schema type in Exchange Online	Table in the One Identity Manager Schema
DistributionGroup	O3EDL
DynamicDistributionGroup	O3EDynDL
Mailbox	O3EMailbox
MailContact	O3EMailContact
MailPublicFolder	O3EMailPublicFolder
MailUser	O3EMailUser
MobileDeviceMailboxPolicy	O3EMobileDeviceMBPolicy
OWAMailboxPolicy	O3EOwaMailboxPolicy
PublicFolder	O3EPublicFolder
RetentionPolicy	O3ERetentionPolicy
RoleAssignmentPolicy	O3ERoleAssignmentPolicy
SharingPolicy	O3ESharingPolicy
UnifiedGroup	O3EUnifiedGroup

Appendix: Editing system objects

The following table describes permitted editing methods for Exchange Online schema types.

Adding and deleting user mailboxes can only be done in One Identity Manager through assignment subscriptions in Azure Active Directory. This creates a mailbox that does not appear in the database until it has been synchronized. Afterward, it can be provisioned automatically in Exchange Online.

Table 17: Methods available for editing schema types

Type	Read	Add	Delete	Refresh
Role assignments policy	Yes	No	No	No
Mobile device mailbox policy	Yes	No	No	No
Sharing policy	Yes	No	No	No
Retention policy	Yes	No	No	No
Outlook Web App mailbox policy	Yes	No	No	No
Public Folder	Yes	No	No	No
Mail-enabled public folder	Yes	No	No	No
Resource mailbox	Yes	Yes	Yes	Yes
Shared mailbox	Yes	Yes	Yes	Yes
User mailbox	Yes	No	No	No
Email contact	Yes	Yes	Yes	Yes
Email user	Yes	Yes	Yes	Yes
Distribution group	Yes	Yes	Yes	Yes
Dynamic distribution	Yes	No	Yes	Yes

Type	Read	Add	Delete	Refresh
group				
Office 365 group	Yes	Yes	Yes	Yes

One Identity solutions eliminate the complexities and time-consuming processes often required to govern identities, manage privileged accounts and control access. Our solutions enhance business agility while addressing your IAM challenges with on-premises, cloud and hybrid environments.

Contacting us

For sales or other inquiries, visit <https://www.oneidentity.com/company/contact-us.aspx> or call +1-800-306-9329.

Technical support resources

Technical support is available to One Identity customers with a valid maintenance contract and customers who have trial versions. You can access the Support Portal at <https://support.oneidentity.com/>.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal enables you to:

- Submit and manage a Service Request
- View Knowledge Base articles
- Sign up for product notifications
- Download software and technical documentation
- View how-to-videos at www.YouTube.com/OneIdentity
- Engage in community discussions
- Chat with support engineers online
- View services to assist you with your product

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