



## **GALSYNC® v8.4**

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### Quick Start Guide

**NETsec**

04. April 2024

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# Introduction

## GALsync

GALsync synchronizes the Global Address List (GAL) between different Exchange environments, which can be on-premises Exchange environments or Exchange Online of Microsoft 365 tenants.

For each Exchange environment, you can configure which mail-enabled objects will be synchronized as mail-enabled contacts to the other Exchange environments. Also, you can configure how the received mail-enabled objects from the other Exchange environments will be synchronized as mail-enabled contacts to your own Exchange environment.

This will make the mail-enabled objects from the other Exchange environments visible as contacts in the Global Address List (GAL).

This **Quick Start Guide** describes with examples how to create an **Environment Configuration** for an Exchange environment and how to configure the policies for export and import between two Exchange environments.

For more information about different synchronization scenarios and the configuration settings, please take a look at the GALsync manual.

### GALsync Documentation

<https://www.netsec.de/en/products/galsync/documentation.html>

## contactSync

contactSync synchronizes contacts contained in a Shared Mailbox or in a modern Public Folder into users' mailboxes in the same Exchange environment.

It also synchronizes the Global Address List (GAL) into users' mailboxes, that are in the same environment. Mail-enabled objects in an on-premises Active Directory can be synchronized into Exchange mailboxes in the same Exchange environment and mail-enabled objects in a Microsoft 365 tenant can be synchronized into Exchange mailboxes in the same Exchange environment.

contactSync synchronizes the contacts into a subfolder within the user's mailbox contacts.

Please take a look at the contactSync documentation for additional information.

### contactSync Documentation

<https://www.netsec.de/en/products/contactsync/documentation.html>



# Prerequisites

## System Requirements

Components	Required
OS (64Bit)	Windows Server 2016 Windows Server 2019 Windows Server 2022 In small environments or for testing purposes you can also install GALsync on a client computer running Windows 10 Professional.
Hardware	Processor: minimum dual core RAM: minimum 4GB
Software	.NET Framework 4.8.0 and later Windows PowerShell 5.1 and ExchangeOnlineManagement PowerShell module version 3.4 or later for Exchange Online PowerShell V3
Recommendations	<b>Exchange On-Premises:</b> We recommend to install GALsync on a member server within the domain (e.g., dedicated GALsync server or file server). The machine should be uncritical (e.g., may be restarted without complications). The GALsync server must have a high bandwidth connection to the DC/GC. <b>Exchange Online:</b> See recommendations for On-Premises; but you can use also a standalone computer.
Supported Exchange Versions*	Exchange 2013* SP1 and later Exchange 2016 and later Exchange 2019 and later Microsoft 365 Exchange Online

*\* Microsoft stopped supporting Exchange 2013 on the 11th April 2023.*

*Microsoft stopped supporting for Windows Server 2012 and Windows Server 2012 R2 on the 10th October 2023.*

*As much as we would like to keep up compatibility for all versions, we cannot support an Environment, which is no longer supported by the manufacturer.*

## Overview

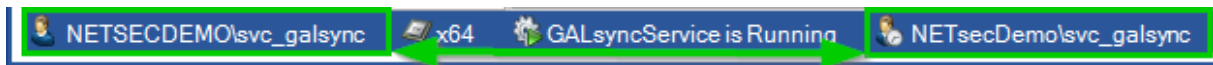
GALsync requires a service account. The GALsync service account is only a domain user in the Active Directory and has an Exchange mailbox. The mailbox of the GALsync service account can be located at the on-premises Exchange or in Exchange Online.

On your GALsync server, the service account should be the local administrator and it should be possible to log on to the server as this account. Remote desktop connectivity may also be required.

Furthermore, the service account on the GALsync server needs the right to run as a service.

It is recommended to run the GALsync GUI always in the credentials of the local GALsync service account.

This can be confirmed on the information bar at the bottom of the GALsync GUI.



### Exchange on-premises and on-premises Active Directory:

The on-premises GALsync service account needs the permission to create, modify and delete objects and their attributes below your defined Import-OUTs of the on-premises Active Directory for synchronizing into an on-premises Exchange environment.

Please take a look at the chapter

**Active Directory Permission for the Import OU (on-premises).**

### Exchange Online:

Synchronizing directly with Exchange Online, you have the option of user-based authentication or certificate-based authentication. Certificate-based authentication for Exchange Online is recommended so the GALsync service account will not require any additional authorizations.

The certificate-based authentication for Exchange Online is described in the chapter **Exchange Online certificate-based authentication via App Registration**

## Service Account (on-premises)

The on-premises GALsync service account is a domain user of the on-premises Active Directory.

The on-premises service account is a member of the **Local Administrators** group on the Windows Server, where GALsync is installed.

The on-premises service account needs the local right to **run as a service** on the Windows Server, where GALsync is installed. This permission is added to the service account during the installation.

Make sure you can logon as the on-premises service account to the Windows Server, where GALsync is installed. It is likely that the on-premises service account requires membership in the local **Remote Desktop Users** group.

*Note: We strongly recommend logging on as the service account to run the GALsync GUI.*

The GALsync Service must run in the credentials of the on-premises service account.

In order to install GALsync you need administrative permission. Setup will also install the GALsync Service on the Windows Server you install GALsync on.

*Important: If you configure the logon information for the Active Directory domain service account in the GALsync GUI using on-premises Exchange, it will be necessary use the format domain\username.*

The on-premises GALsync service account needs the permission to create, modify and delete objects and their attributes below your defined Import-OUs for synchronizing into an on-premises Exchange environment.

Please take a look at the chapter  
**Active Directory Permission for the Import OU (on-premises).**

## Exchange mailbox for the GALsync Service Account

The GALsync service account needs a licensed Exchange mailbox in the environment.

- GALsync must have direct access to the user mailbox of the service account via Exchange Web Services (EWS).
- Ensure the mailbox is accessible (e.g., by Outlook Web Access).
- Ensure the mailbox can send to and receive email from the other organization.
- Ensure incoming mail from the other organization does not get caught by your spam filter or firewall.

### On-premises mailbox

For an on-premises Exchange scenario, the on-premises GALsync service account needs a mailbox located on the on-premises Exchange Server.

### Exchange Online mailbox

An Exchange Online mailbox for the GALsync service account needs to be licensed with an Exchange Online license in the Microsoft 365 tenant.

*For example: Microsoft 365 Business Basic, Exchange Online (Plan 1) or Microsoft 365 E1 license will work for the service account.*

## Local service account on a standalone server

If you run GALsync on a standalone Windows Server, please create a local account for GALsync. This is only valid for Exchange Online cloud-only scenarios.

Please use the local account to configure and run the GALsync Service and the GALsync GUI in the credentials of this local account.

The local account needs the same local permissions as a domain user described above.

The local account will be required to use Modern Authentication for Microsoft 365 Exchange Online. The GALsync Service Account of the Microsoft 365 Exchange Online tenant is independent of this local account.

For example: **galsync** is a local account of the **standalone Windows Server**.

Please run also the GALsync GUI in the credentials of this local account.

*Important: If you configure the logon information for the local service account in the GALsync GUI, it will be necessary use the format `computername\username`.*

## Execution Policy (Microsoft 365 Exchange Online)

If you configure a policy for Microsoft 365 Exchange Online, GALsync needs the parameter **ExecutionPolicy** to be set to **RemoteSigned** for the Windows PowerShell to connect to Exchange Online.

The reason for this is a security setting built into **Windows PowerShell** called execution policy. Execution policy determines how (or if) PowerShell runs scripts. By default, PowerShell's execution policy is set to Restricted; this means that scripts will not run. GALsync requires that scripts can be run.

```
Get-ExecutionPolicy
```

<http://technet.microsoft.com/en-us/library/hh849821.aspx>

```
Set-ExecutionPolicy RemoteSigned
```

<https://technet.microsoft.com/en-us/library/hh849812.aspx>

## ExchangeOnlineManagement PowerShell module (Microsoft 365 Exchange Online)

GALsync requires **Windows PowerShell 5.1** and **ExchangeOnlineManagement PowerShell module version 3.4 or later** for Exchange Online PowerShell V3.

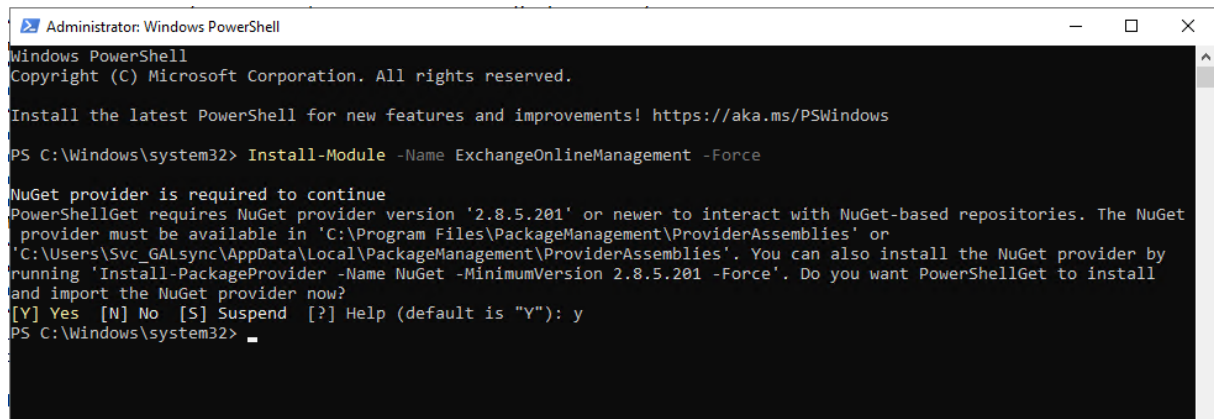
On the GALsync Server you need to install the **ExchangeOnlineManagement PowerShell module** so GALsync can directly communicate with a Microsoft 365 Exchange Online tenant.

### Install ExchangeOnlineManagement PowerShell module

On the GALsync Server, open **Windows PowerShell** as **Administrator**, then run the following to install:

```
Install-Module -Name ExchangeOnlineManagement -Force
```

When prompted, enter **Y** for Yes then Return



```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Windows\system32> Install-Module -Name ExchangeOnlineManagement -Force

NuGet provider is required to continue
PowerShellGet requires NuGet provider version '2.8.5.201' or newer to interact with NuGet-based repositories. The NuGet
provider must be available in 'C:\Program Files\PackageManagement\ProviderAssemblies' or
'C:\Users\Svc_GALsync\AppData\Local\PackageManagement\ProviderAssemblies'. You can also install the NuGet provider by
running 'Install-PackageProvider -Name NuGet -MinimumVersion 2.8.5.201 -Force'. Do you want PowerShellGet to install
and import the NuGet provider now?
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): y
PS C:\Windows\system32>
```

Please have look at the **Prerequisites for the Exchange Online PowerShell module** chapter of the **Microsoft Docs: About the Exchange Online PowerShell module**

<https://learn.microsoft.com/en-us/powershell/exchange/exchange-online-powershell-v2?view=exchange-ps#install-the-exchange-online-powershell-module>

### Update ExchangeOnlineManagement PowerShell module

On the GALsync Server, open **Windows PowerShell** as **Administrator**, then run the following to update:

```
Update-Module -Name ExchangeOnlineManagement -Force
```

Please have look at the **Prerequisites for the Exchange Online PowerShell module** chapter of the **Microsoft Docs: About the Exchange Online PowerShell module**

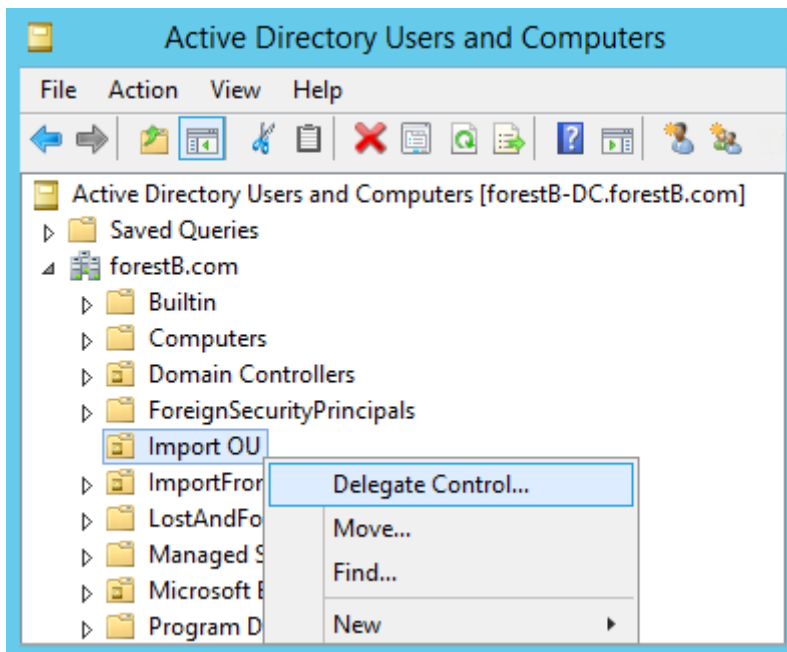
<https://learn.microsoft.com/en-us/powershell/exchange/exchange-online-powershell-v2?view=exchange-ps#update-the-exchange-online-powershell-module>

## Active Directory Permission for the Import OU (on-premises)

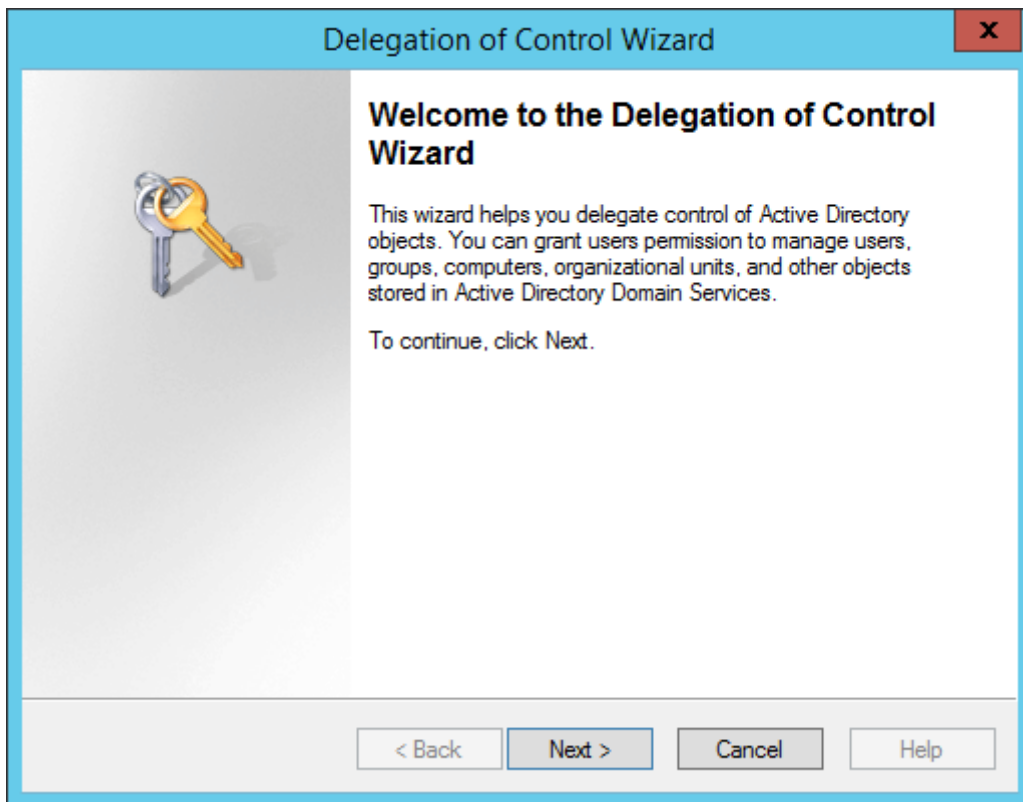
The GALsync Service Account needs write permissions to all Organizational Units where you want to import data to with GALsync.

*Note: The resulting permissions must be for "This object and all descendant objects" and for all properties.*

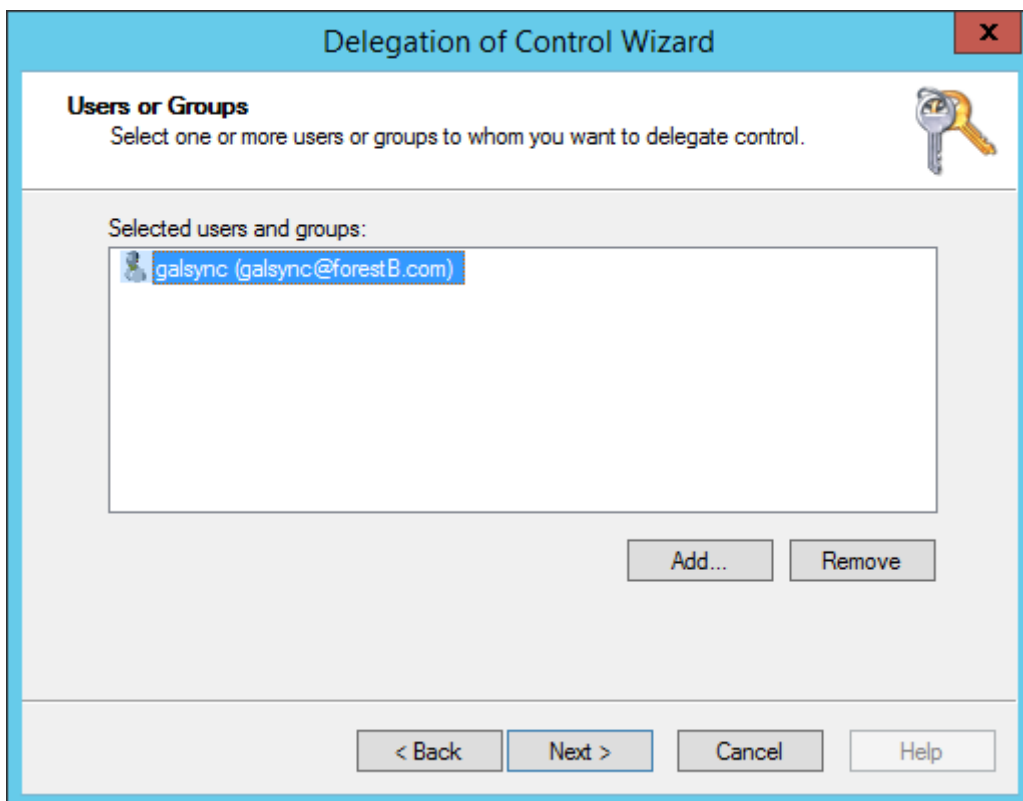
Use **Active Directory Users and Computers**. After creating the OU right-click the OU and choose **Delegate Control**.



Follow the wizard and click **Next**.

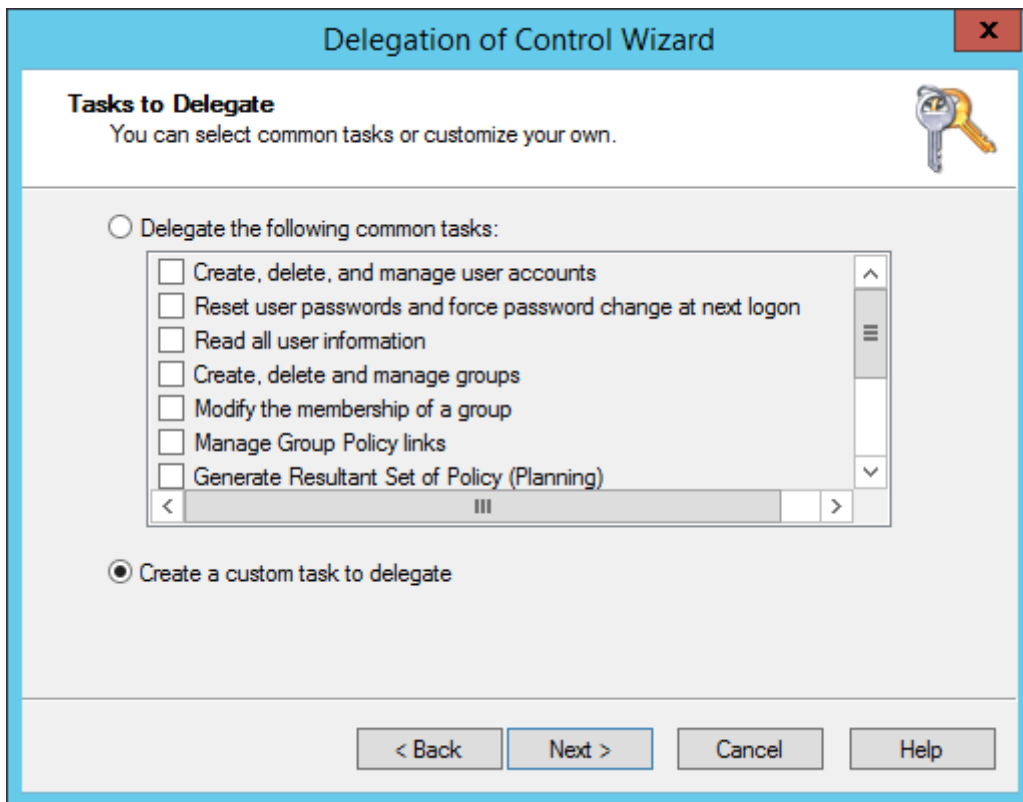


Add the GALsync Service account to the list and click **Next**.





Choose the option **Create a custom task** to delegate and click **Next**.



The screenshot shows the 'Delegation of Control Wizard' window. The title bar is blue with a close button (X) on the right. The main area has a light blue header with the text 'Tasks to Delegate' and a sub-header 'You can select common tasks or customize your own.' To the right of the header is a key icon. Below the header, there are two radio buttons. The first is 'Delegate the following common tasks:' and the second is 'Create a custom task to delegate', which is selected. Below the first radio button is a list box containing several tasks: 'Create, delete, and manage user accounts', 'Reset user passwords and force password change at next logon', 'Read all user information', 'Create, delete and manage groups', 'Modify the membership of a group', 'Manage Group Policy links', and 'Generate Resultant Set of Policy (Planning)'. At the bottom of the window are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

**Delegation of Control Wizard**

**Tasks to Delegate**  
You can select common tasks or customize your own.

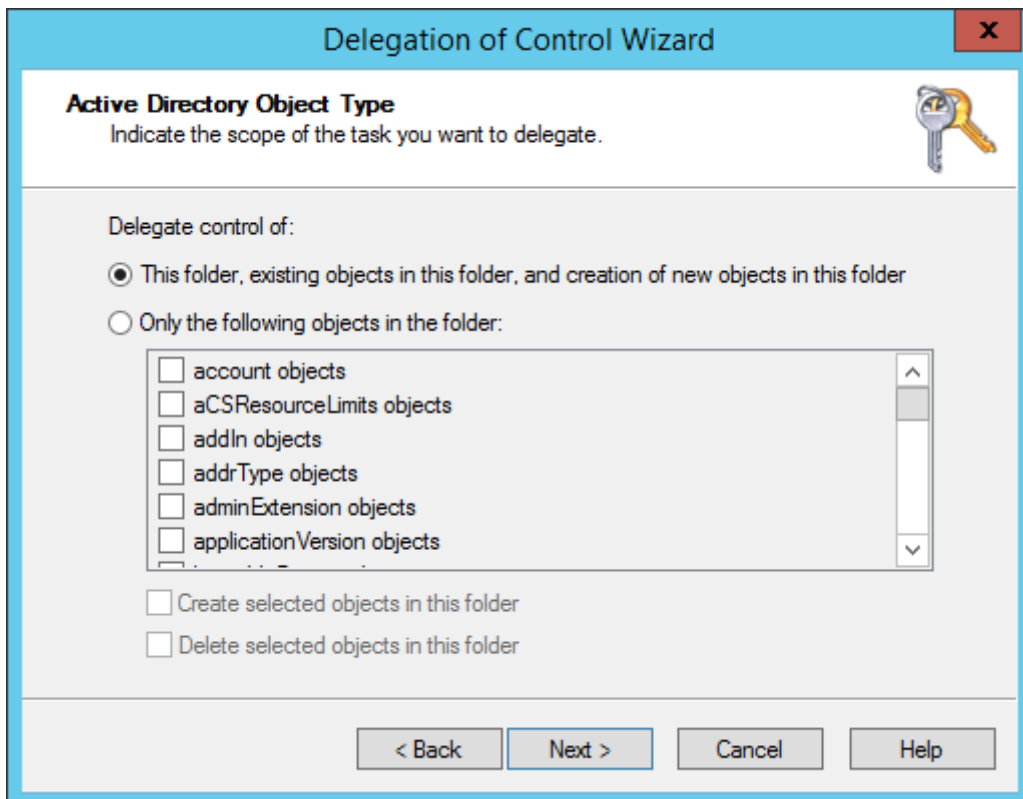
☐ Delegate the following common tasks:

- ☐ Create, delete, and manage user accounts
- ☐ Reset user passwords and force password change at next logon
- ☐ Read all user information
- ☐ Create, delete and manage groups
- ☐ Modify the membership of a group
- ☐ Manage Group Policy links
- ☐ Generate Resultant Set of Policy (Planning)

☒ Create a custom task to delegate

< Back   Next >   Cancel   Help

Leave the next window as it is and click **Next**.



The screenshot shows the 'Delegation of Control Wizard' window. The title bar is blue with a close button (X) on the right. The main area has a light blue header with the text 'Active Directory Object Type' and a sub-header 'Indicate the scope of the task you want to delegate.' To the right of the header is a key icon. Below the header, there is a label 'Delegate control of:' followed by two radio buttons. The first is 'This folder, existing objects in this folder, and creation of new objects in this folder', which is selected. The second is 'Only the following objects in the folder:'. Below the second radio button is a list box containing several object types: 'account objects', 'aCSResourceLimits objects', 'addIn objects', 'addrType objects', 'adminExtension objects', and 'applicationVersion objects'. Below the list box are two checkboxes: 'Create selected objects in this folder' and 'Delete selected objects in this folder'. At the bottom of the window are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'.

**Delegation of Control Wizard**

**Active Directory Object Type**  
Indicate the scope of the task you want to delegate.

Delegate control of:

☒ This folder, existing objects in this folder, and creation of new objects in this folder

☐ Only the following objects in the folder:

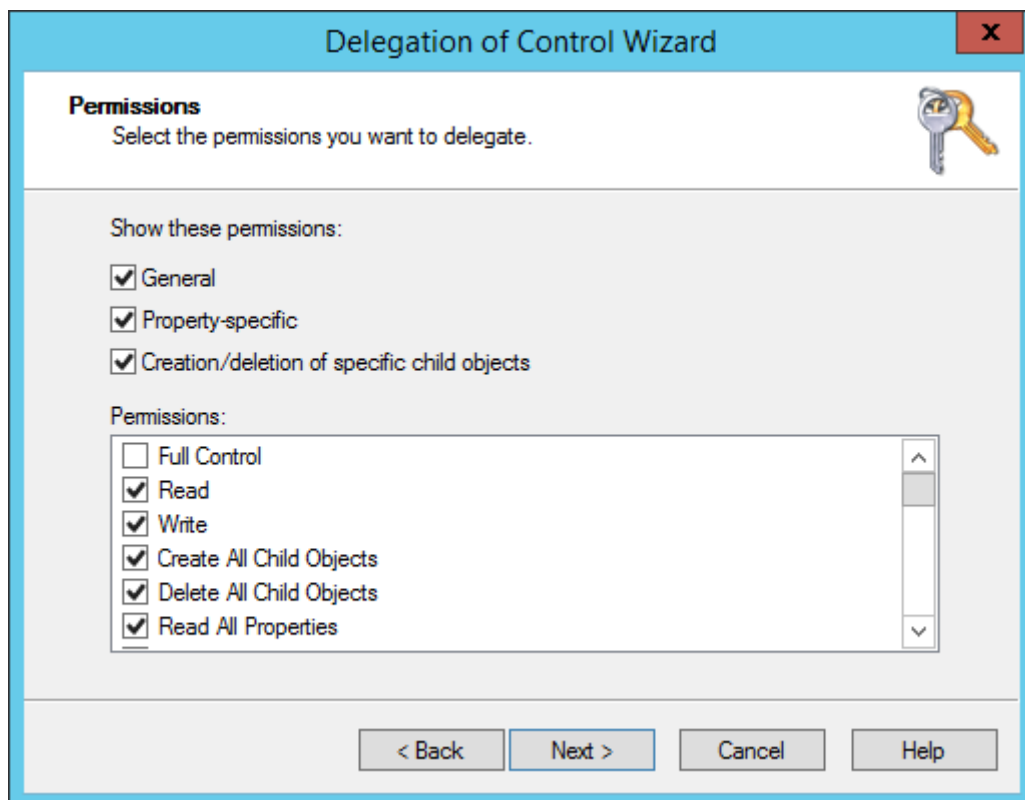
- ☐ account objects
- ☐ aCSResourceLimits objects
- ☐ addIn objects
- ☐ addrType objects
- ☐ adminExtension objects
- ☐ applicationVersion objects

☐ Create selected objects in this folder

☐ Delete selected objects in this folder

< Back   Next >   Cancel   Help

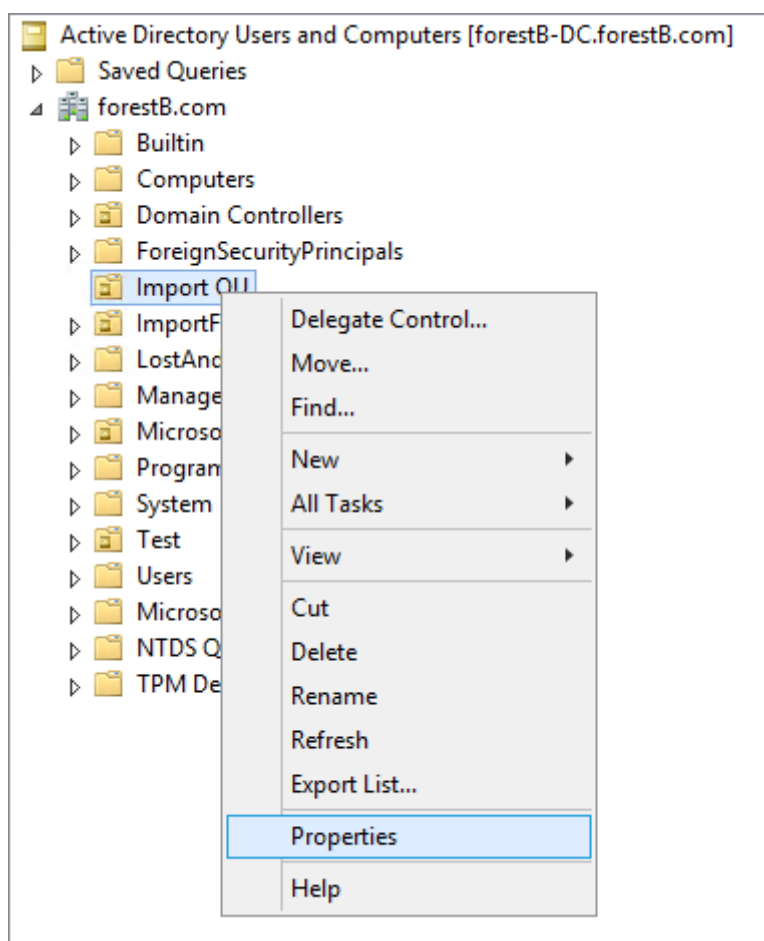
In the next dialog select all permissions except **Full Control** in the **Permissions:** list and click **Next**.



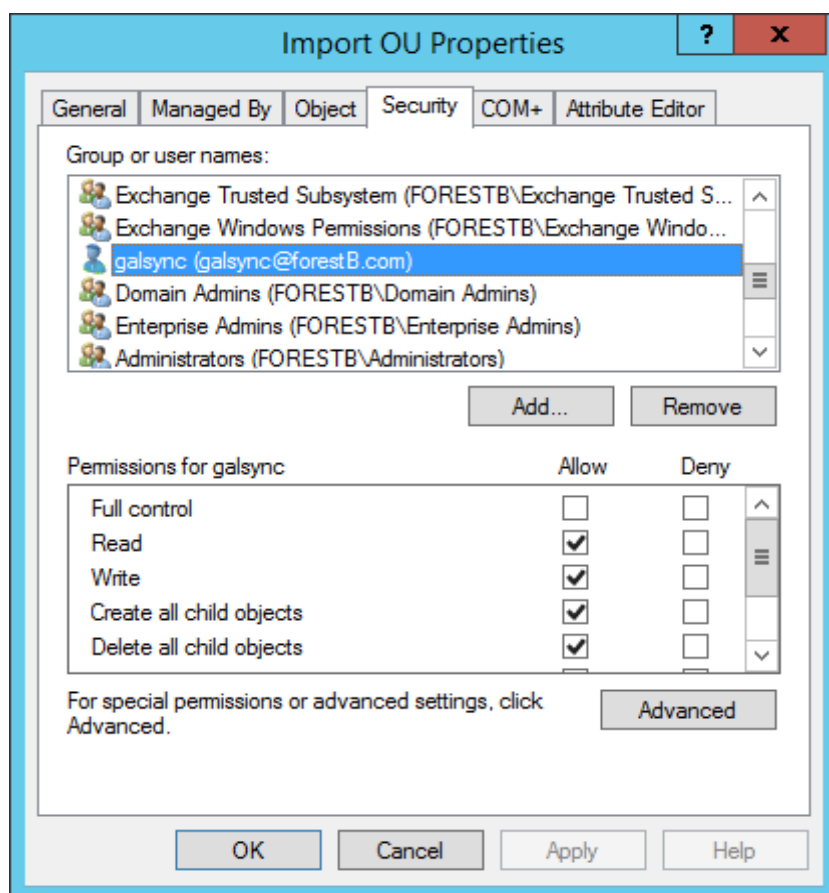
You complete the wizard clicking **Finish**.



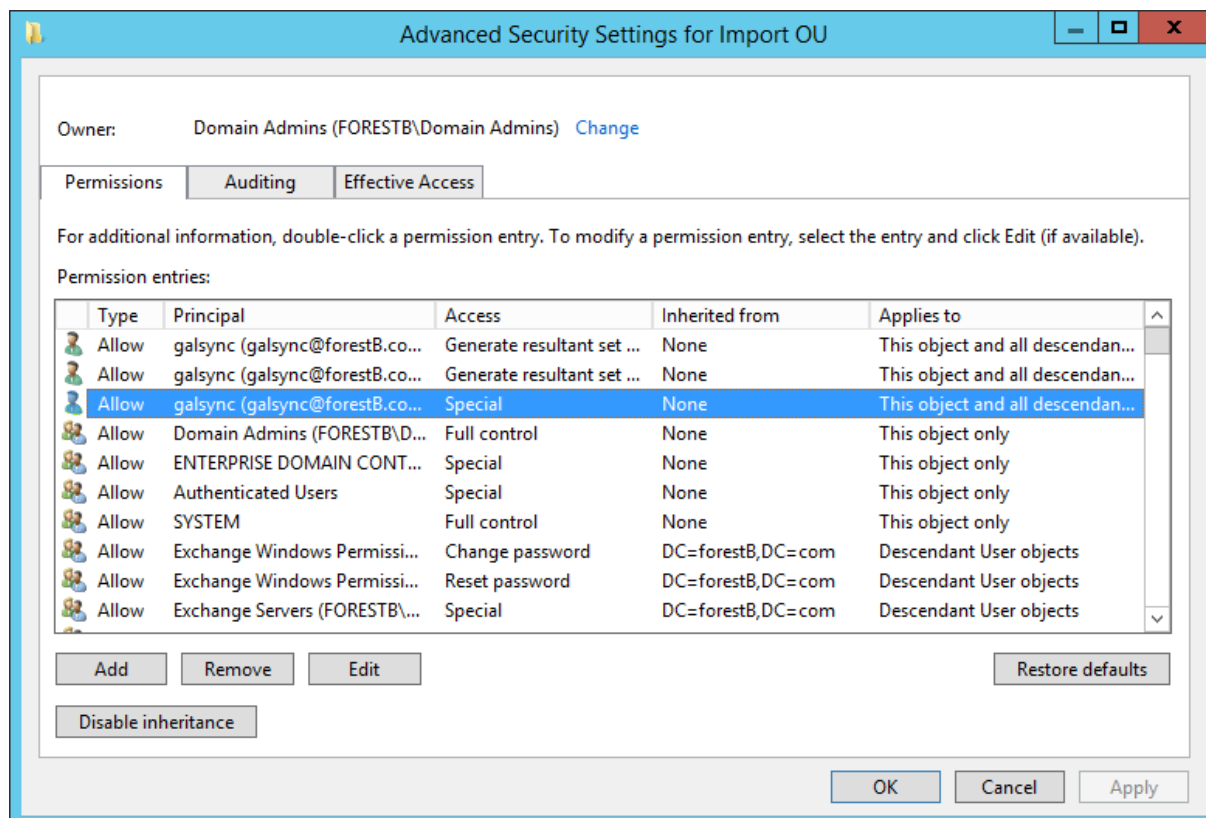
After that, right-click the OU and choose **Properties**.



Select the GALsync Service account and click **Advanced**.

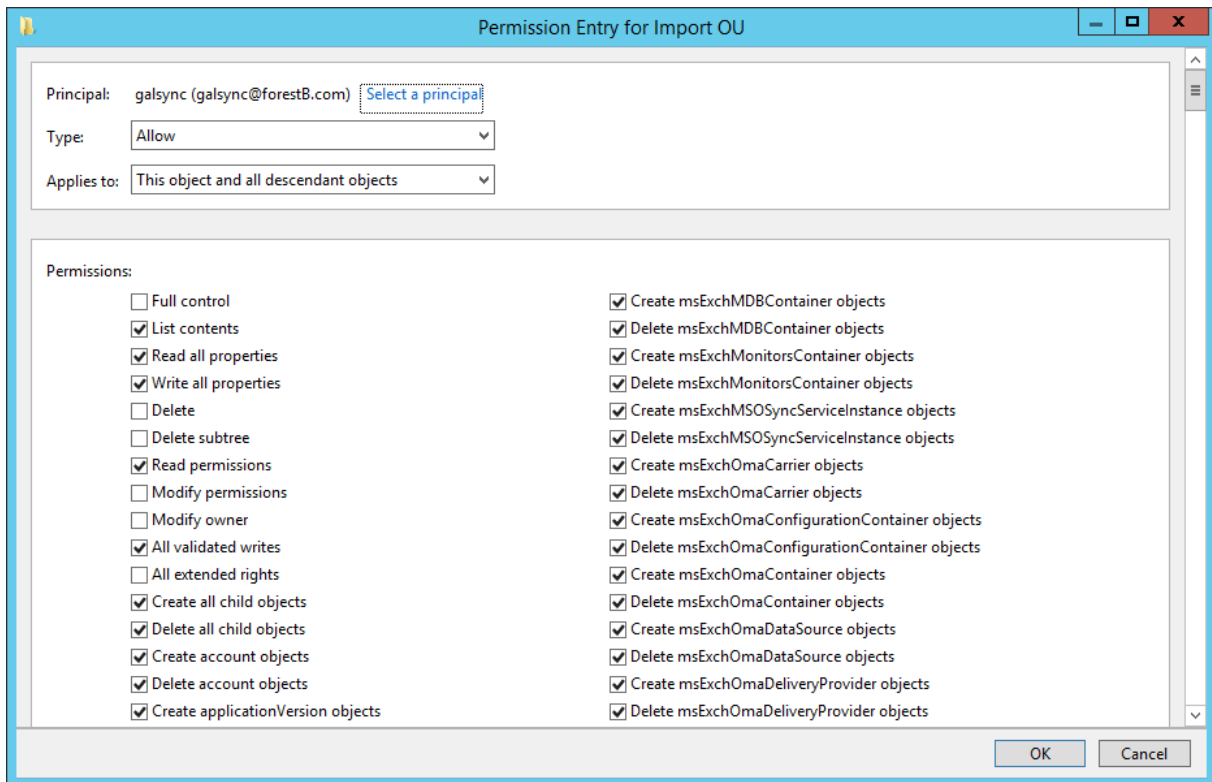


Select the GALsync Service account again and click **Edit**.

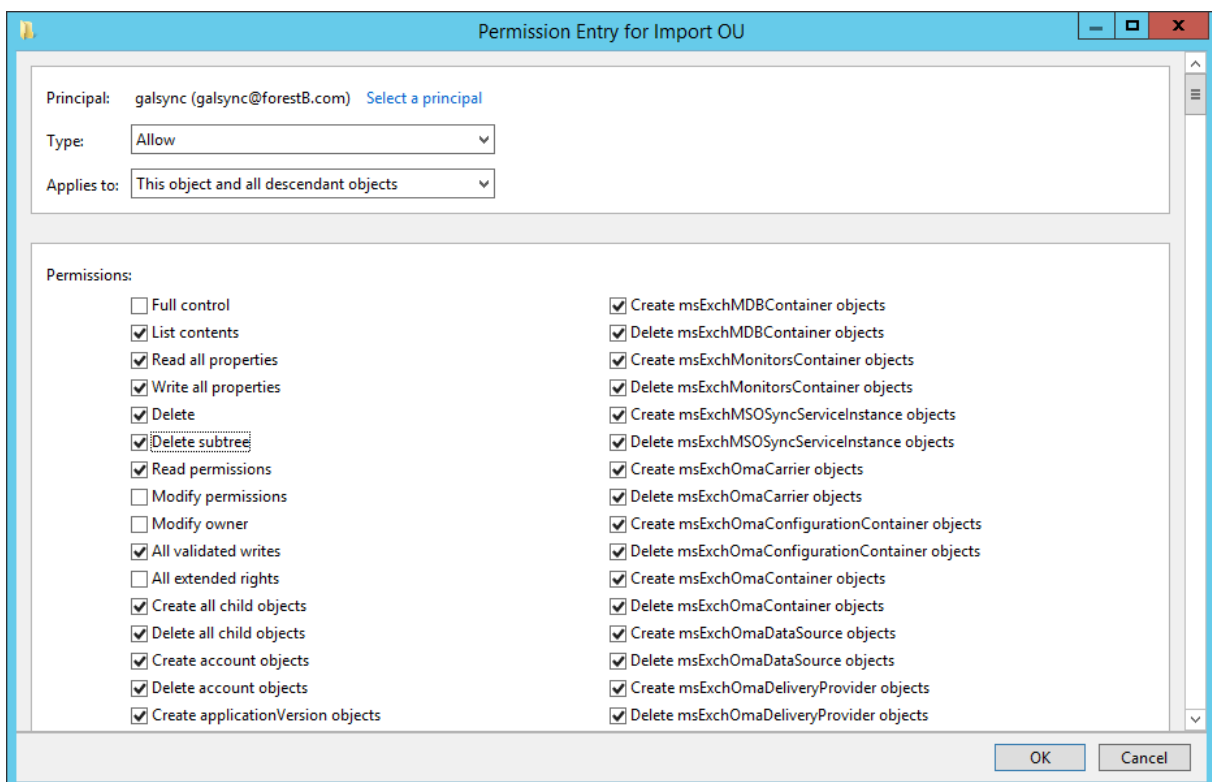


Check that the permission applies to:

### This object and all descendant objects



Select the permissions: **Delete** and **Delete subtree**

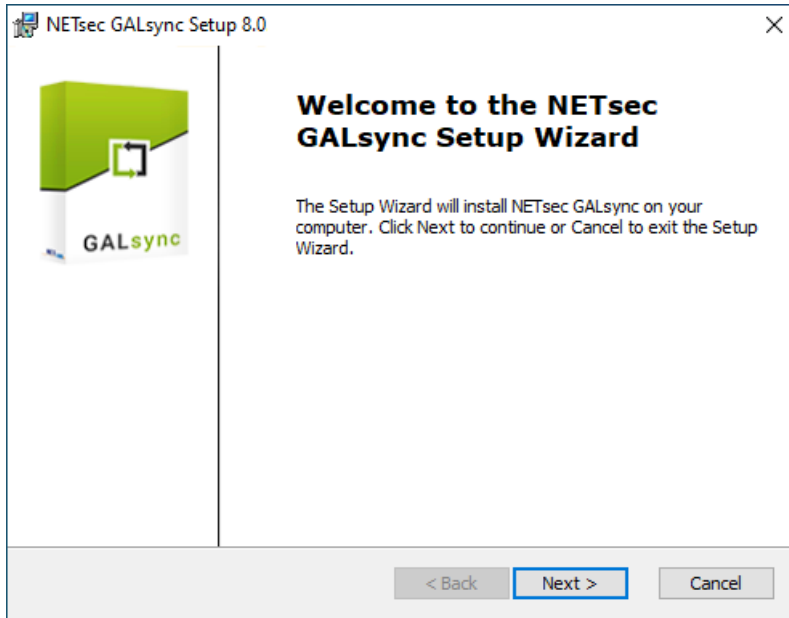


Click **OK** to close all Dialogs.

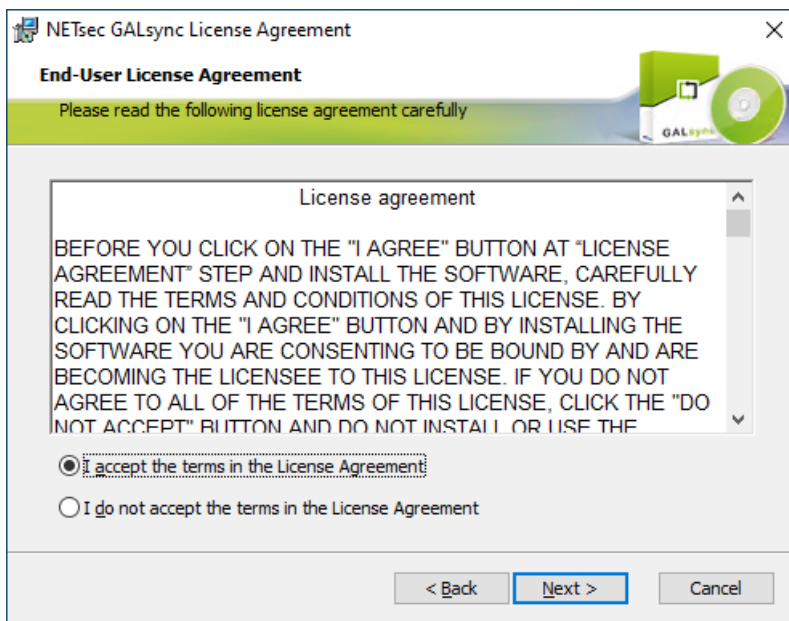
## Installation

### Install GALsync

Open the **GALsyncSetup.msi** file and click **Next**.



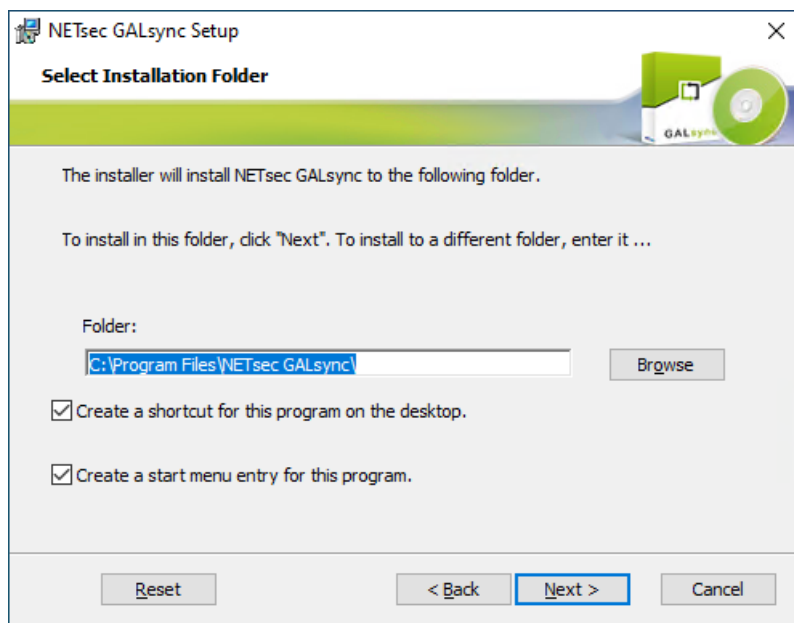
Accept the End-User License Agreement, then click **Next**.



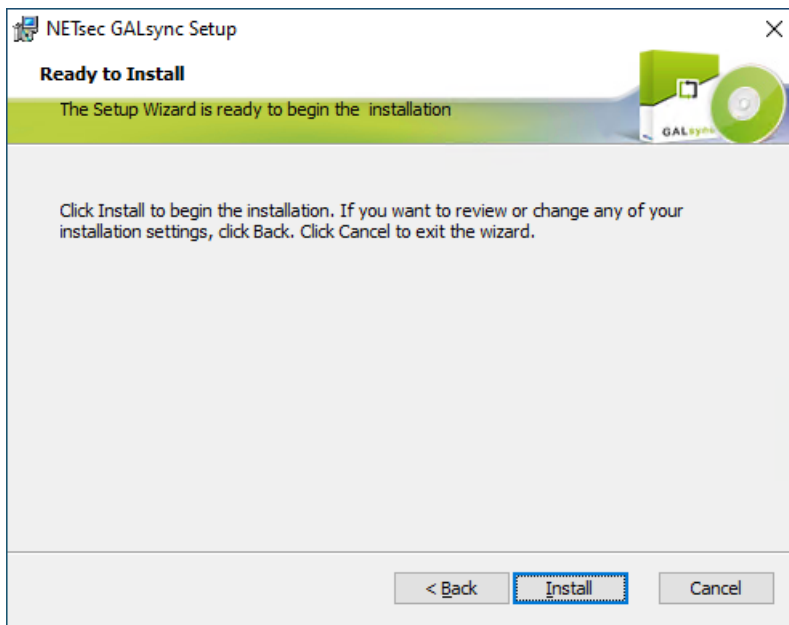
Accept third party license agreement to use the libraries and tools, then click **Next**.



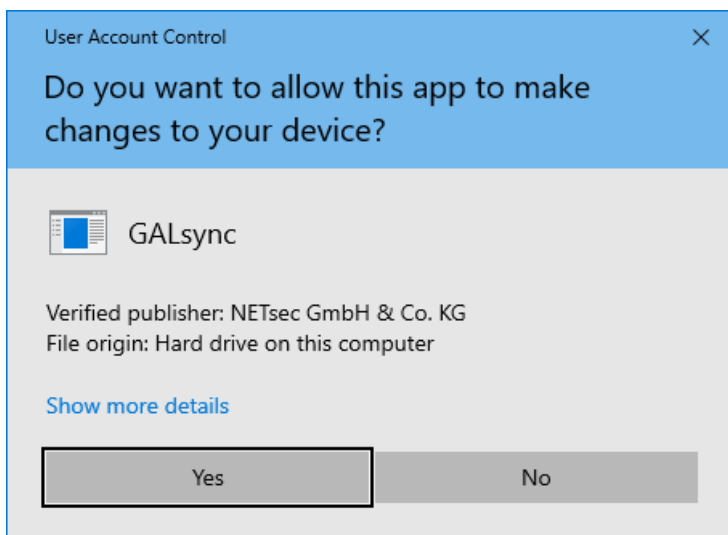
Select the install path for the GALsync binaries, then click **Next**.



Click **Install**.

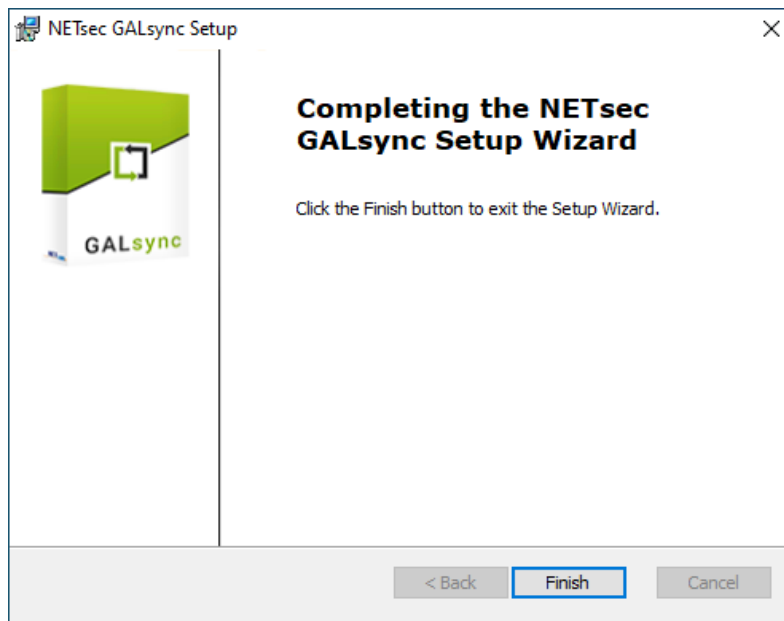


Click **Yes**, if prompted.





Click **Finish**.



## Configure GALsync Service

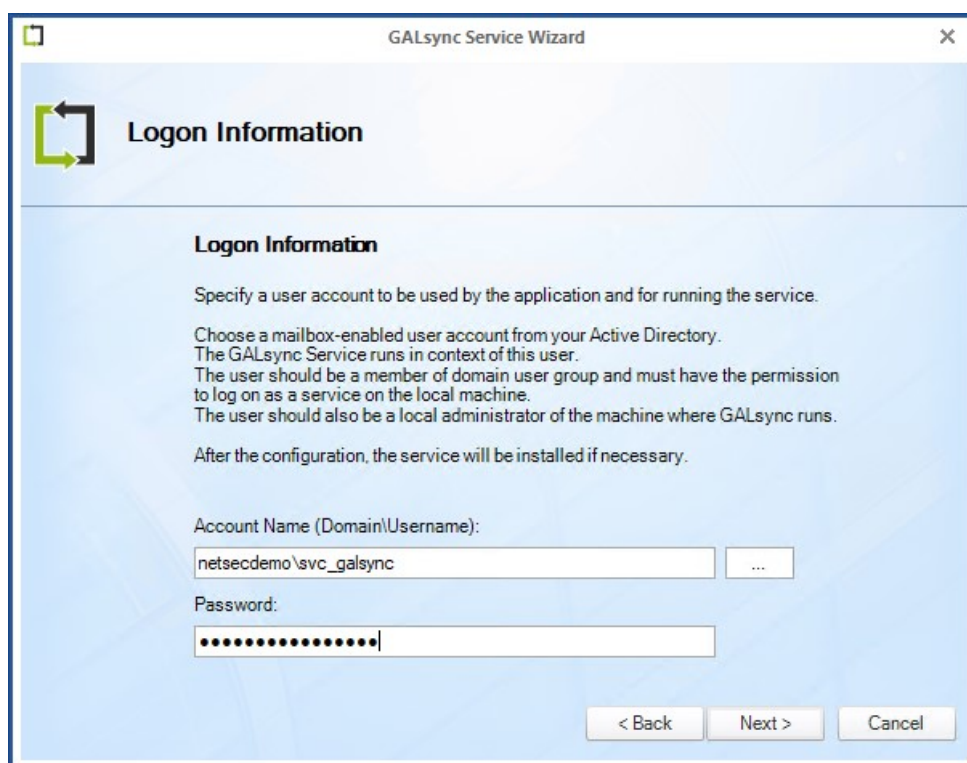
Click the **NETsec GALsync** icon to launch GALsync.



When opened for the first time, the GALsync Service Wizard will open, prompting the user to enter the GALsync Service account credentials.

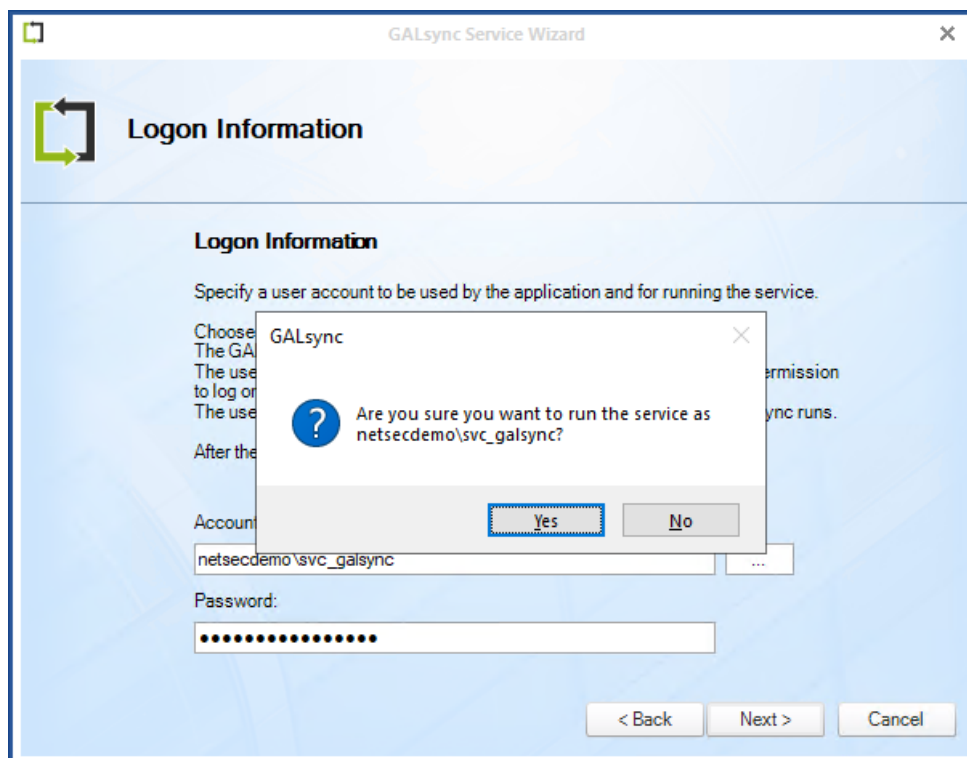


Enter the account credentials in **Domain\Username** format, then click **Next**.



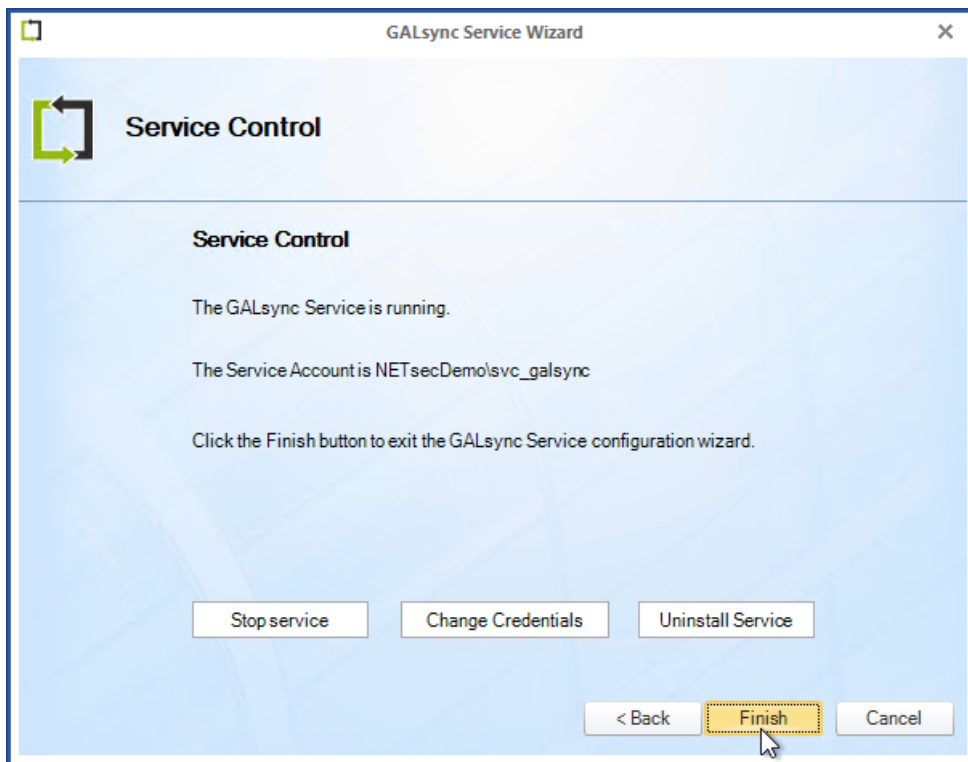
The screenshot shows the 'Logon Information' step of the GALsync Service Wizard. The window title is 'GALsync Service Wizard'. The page has a green circular arrow icon and the title 'Logon Information'. The instructions state: 'Specify a user account to be used by the application and for running the service. Choose a mailbox-enabled user account from your Active Directory. The GALsync Service runs in context of this user. The user should be a member of domain user group and must have the permission to log on as a service on the local machine. The user should also be a local administrator of the machine where GALsync runs. After the configuration, the service will be installed if necessary.' There are two input fields: 'Account Name (Domain\Username):' with the text 'netsecdemo\svc\_galsync' and a browse button '...', and 'Password:' with a masked password field. At the bottom are buttons for '< Back', 'Next >', and 'Cancel'.

If authentication is successful, the user is prompted to confirm the is the correct account to use. Click **Yes**, then click **Next**.

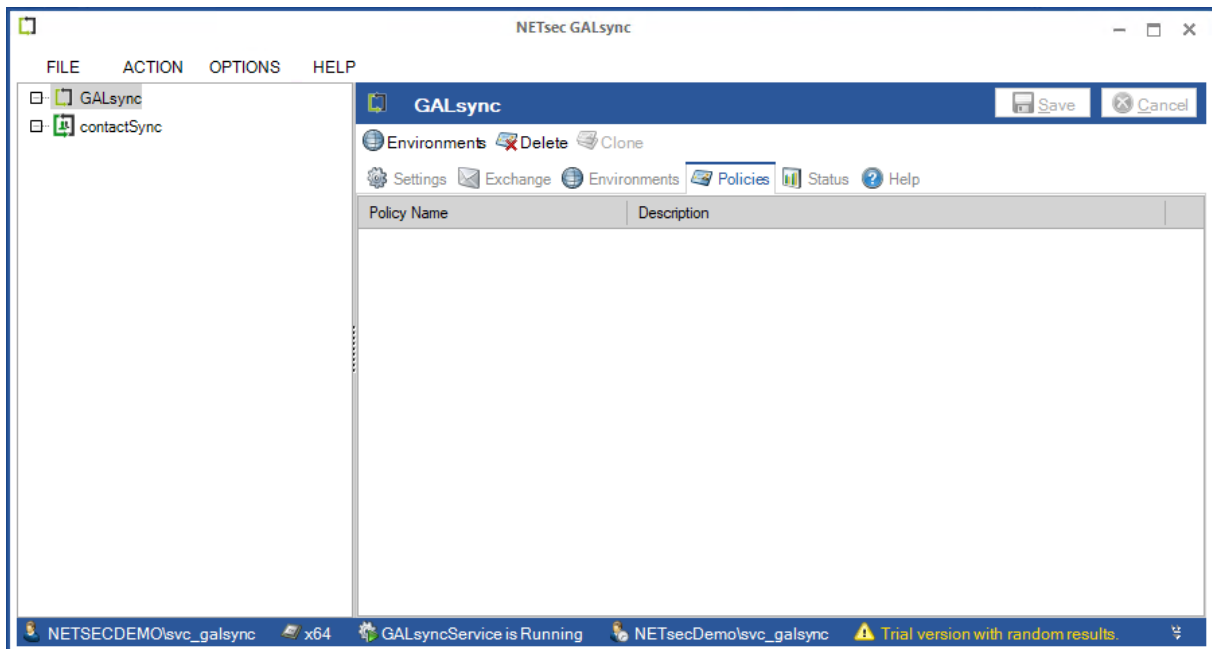


This screenshot shows the same 'Logon Information' screen as before, but with a confirmation dialog box overlaid. The dialog box is titled 'GALsync' and contains a question mark icon and the text: 'Are you sure you want to run the service as netsecdemo\svc\_galsync?'. It has 'Yes' and 'No' buttons. The 'Yes' button is highlighted with a blue border. The background window is partially obscured by the dialog box.

Click **Finish**.

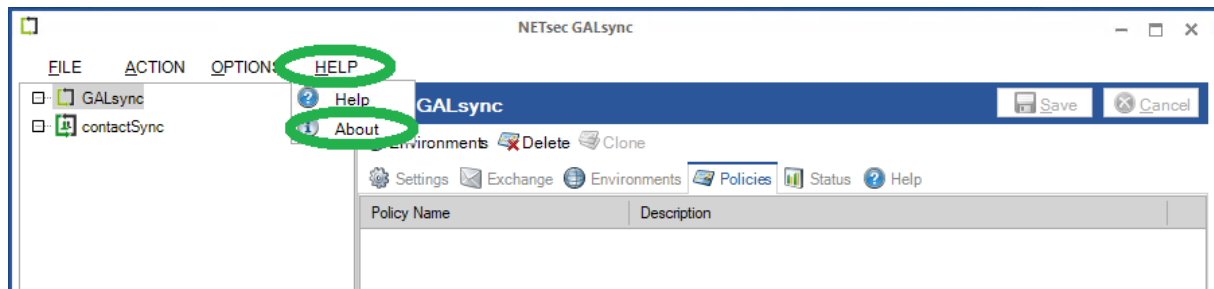


The GALsync user interface opens upon completion of this wizard.

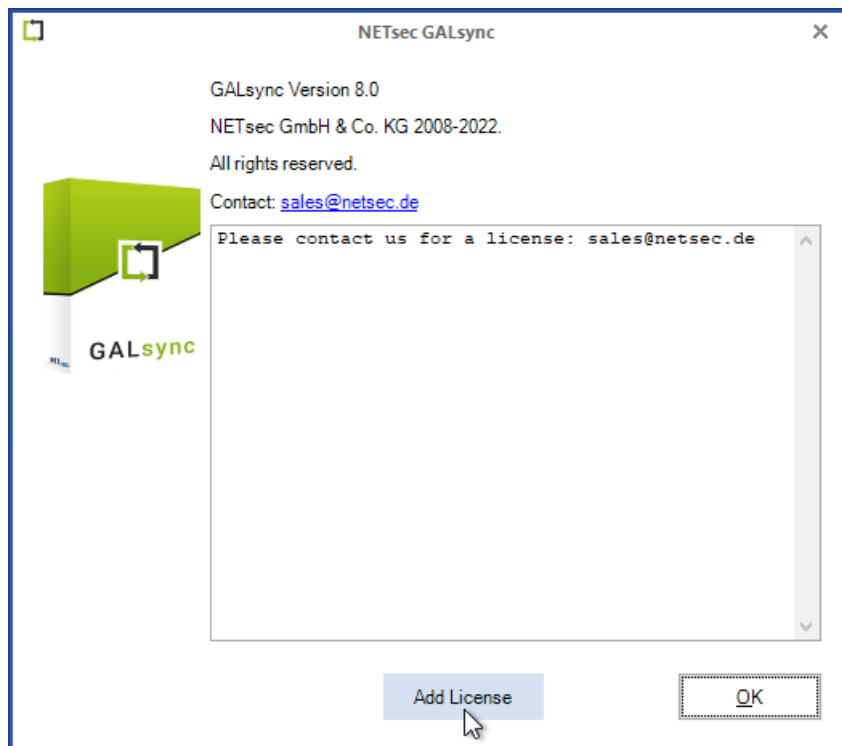


## Apply GALsync License

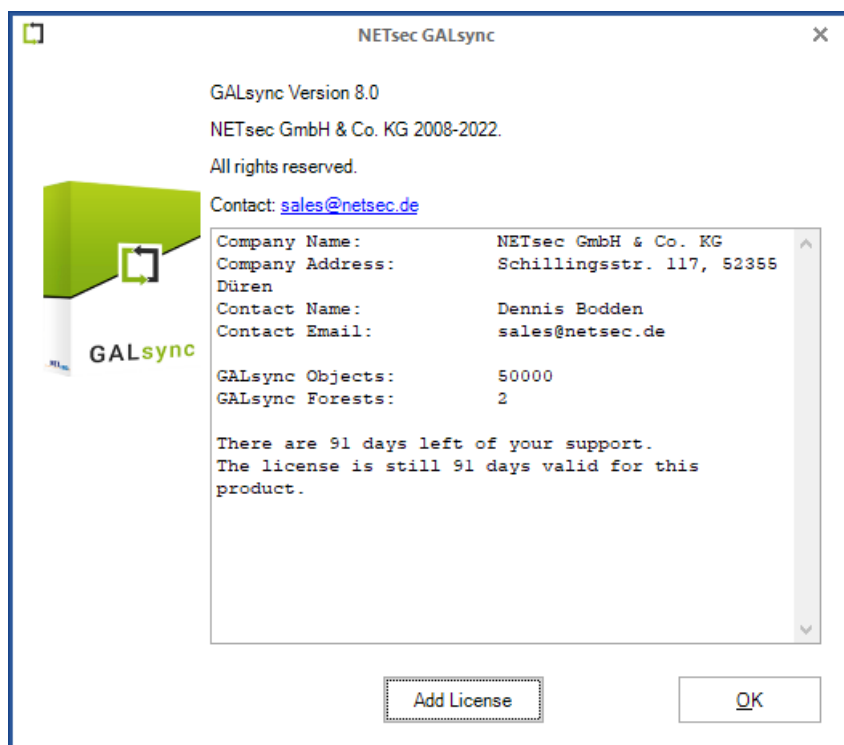
Click the **Help** menu, then **About**.



Click **Add license**, then browse to the location where the GALsync license was saved on the server, then select it and click **Open**.



Click **OK**.

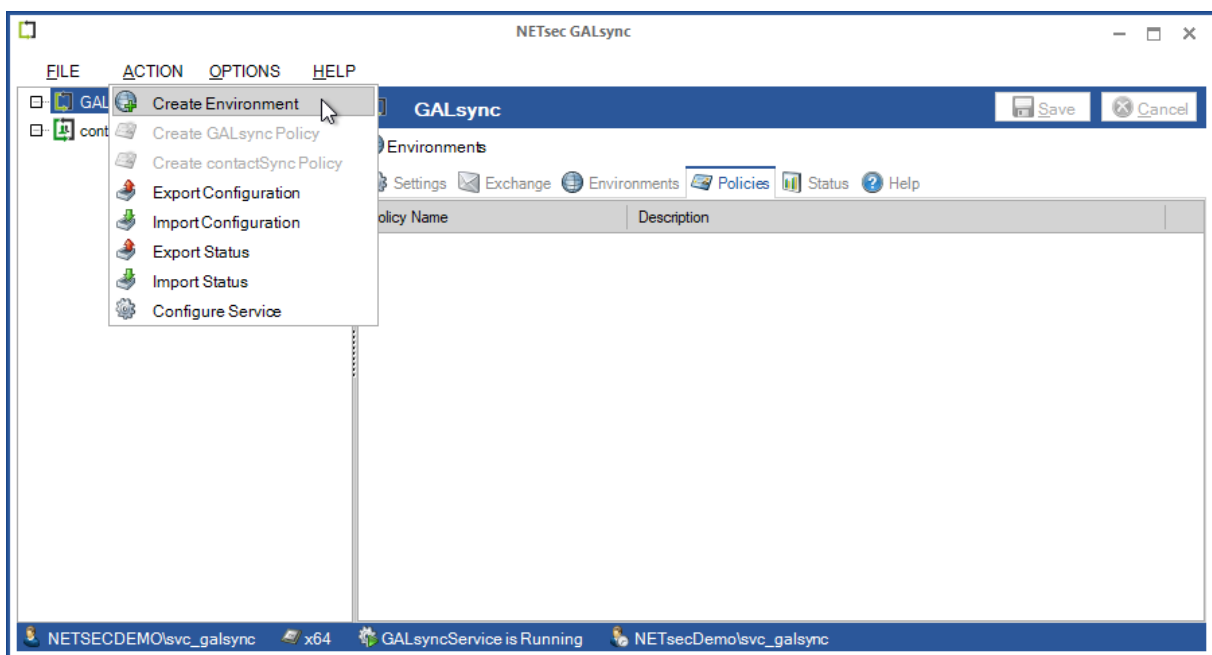


## Create an Environment Configuration

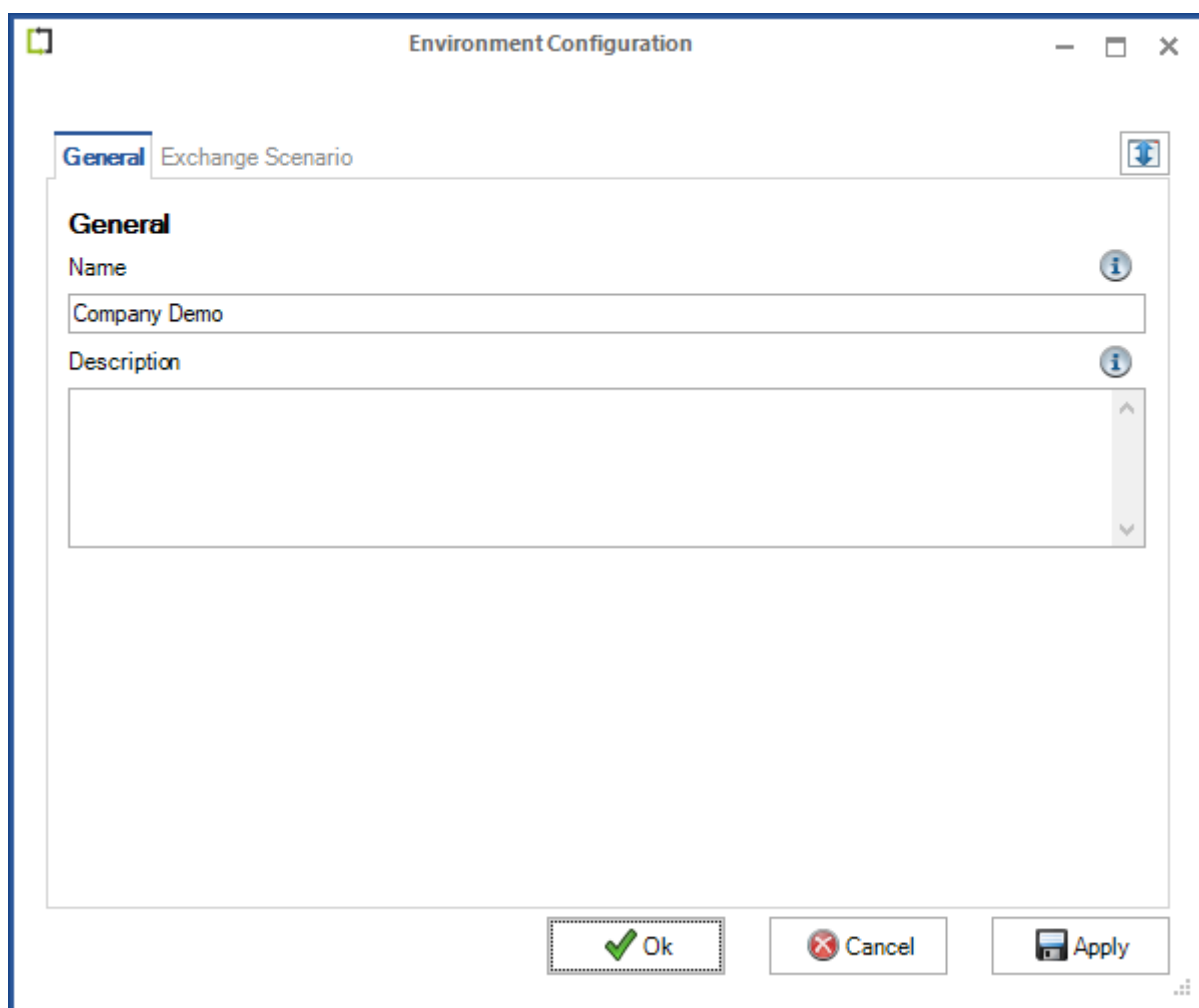
### Create an Environment Configuration for on-premises Exchange environment

*Important: When creating an environment, it is necessary that you logon to the GALsync server as the GALsync Service account. GALsync uses Windows authentication when accessing its mailbox (when on-premises). When creating an Exchange Online environment with certificate-based authentication the certificate will be stored in the certificate store of the current logged on user. The GALsync account will not be able to find and read the certificate when logged on as a different user.*

From the **Action** menu, select **Create Environment**.



In the **General** tab, enter a name for the environment and optional description.



The image shows a screenshot of the "Environment Configuration" dialog box. The "General" tab is selected, and the "Exchange Scenario" sub-tab is active. The "Name" field contains the text "Company Demo". The "Description" field is empty. The dialog box has standard Windows window controls (minimize, maximize, close) in the top right corner. At the bottom, there are three buttons: "Ok" (with a green checkmark icon), "Cancel" (with a red X icon), and "Apply" (with a floppy disk icon).

Environment Configuration

General Exchange Scenario

**General**

Name i

Company Demo

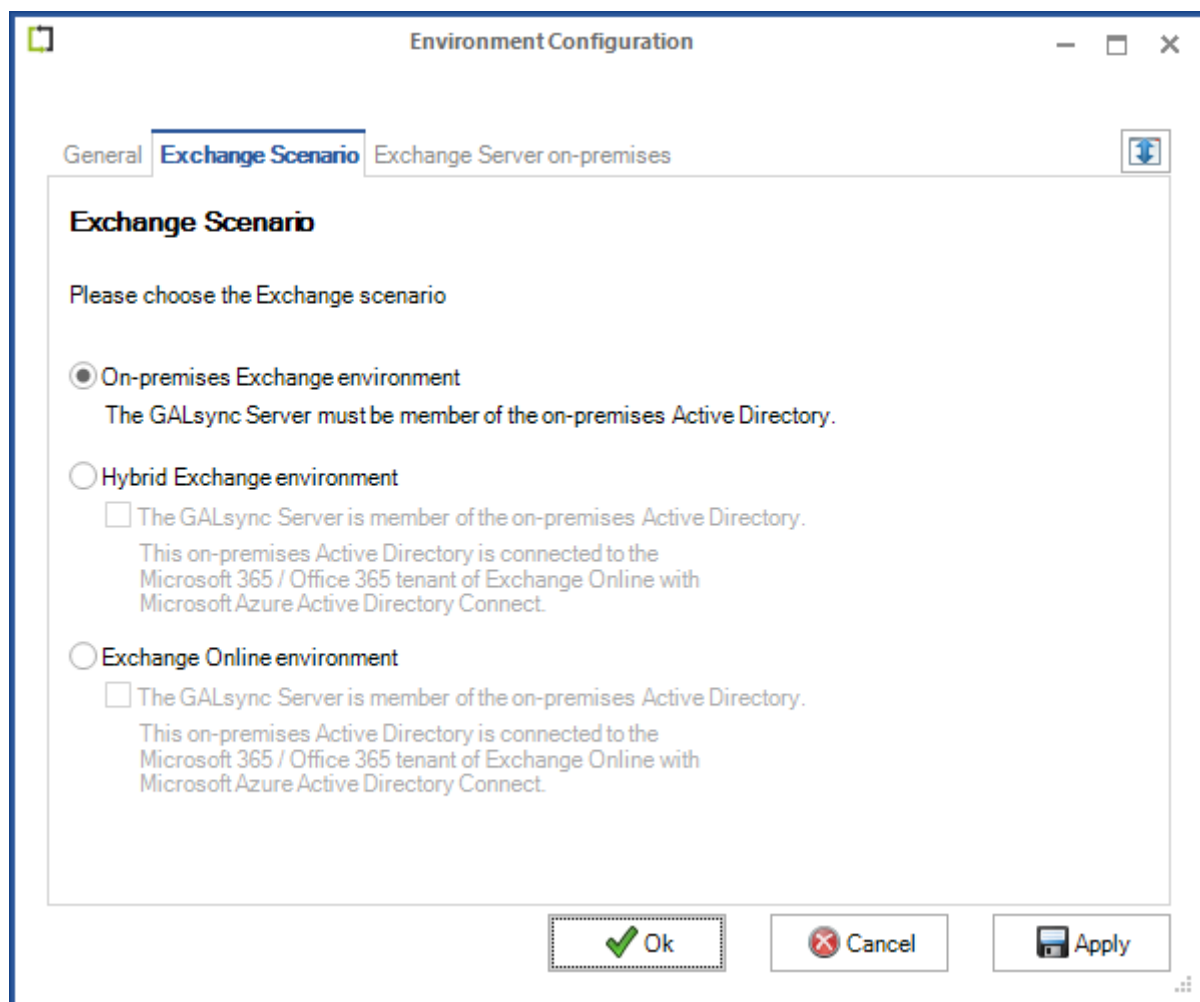
Description i

Ok Cancel Apply



Click the **Exchange Scenario** tab, and select the **On-premises Exchange environment**.

*When an 'On-premises Exchange environment' is selected, GALsync will authenticate to the mailbox of the account that runs the GALsync service.*



To verify connectivity to the mailbox, enter a recipient email then click **Send test email**.

*Autodiscover is used by default to locate the Exchange Web Services URL and connect to its mailbox. If an error is returned which indicates the EWS URL cannot be resolved, a manual setting has been provided to enter a valid Exchange Web Services URL, such as the one shown below, which resolves the issue in most situations.*

If the connection to the mailbox is successful, a test email will be sent to the specified recipient, and a popup message similar to the one below will be returned.

The screenshot shows the 'Environment Configuration' dialog box with the 'Exchange Server on-premises' tab selected. The dialog has three tabs: 'General', 'Exchange Scenario', and 'Exchange Server on-premises'. The 'Exchange Server on-premises' tab contains the following sections:

- Exchange Server on-premises**: A section with the instruction 'Manage the settings for the on-premises Exchange environment.' It contains two radio buttons: 'Use Autodiscover to find the Exchange Web Services URL' (selected) and 'Manual setting'. The 'Manual setting' option has a text input field with the example URL 'e.g. https://casserver.domain.local/EWS/Exchange.asmx'.
- Only for GALsync**: A section with a note: 'Note: This setting is only for GALsync in a special synchronization scenario with a hub-spoke topology.' It contains a radio button for 'No Exchange Server available. Only Active Directory Preparation.' and a checkbox for 'Use Exchange Online mailbox for mailing'. Below the checkbox is the text: 'The Exchange Online mailbox must be hosted by Microsoft Azure public cloud'.
- Exchange Online mailbox**: A section with the instruction 'The user credentials of the Exchange Online mailbox, which should use to send and receive emails.' It contains fields for 'User Name:', 'E-Mail Address:', and 'Modern authentication OAuth 2.0 for Exchange Online'. There is a 'Login' button. Below these fields is a section for 'My Azure Cloud Instance is hosted by:' with a dropdown menu set to 'Microsoft Azure public cloud' and a text input field for the URL 'https://login.microsoftonline.com'. Below this is a section for 'Exchange Web Services URL of Exchange Online' with a text input field containing 'https://outlook.office365.com/EWS/Exchange.asmx'.
- Exchange Mailbox Test**: A section with the instruction 'Send a test email to the recipient:'. It contains a text input field for 'Email address' and a 'Send test email' button.

At the bottom of the dialog are three buttons: 'Ok' (with a green checkmark icon), 'Cancel' (with a red X icon), and 'Apply' (with a floppy disk icon).

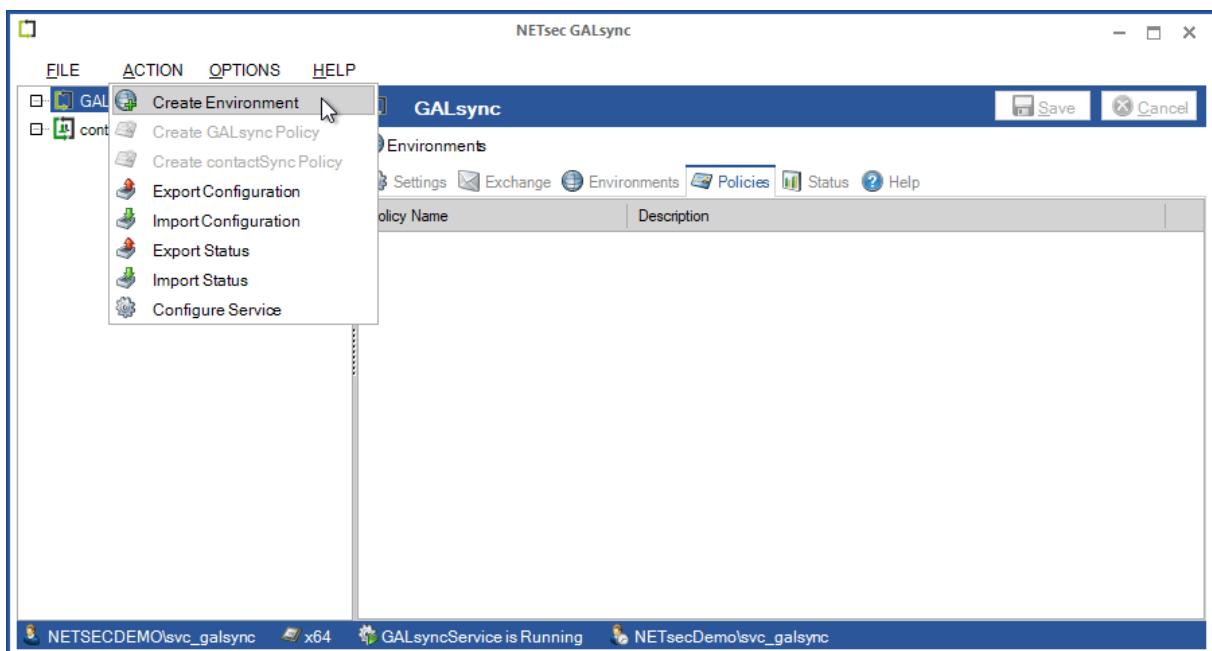
Apply the changes, then click **OK**.

## Create an Environment Configuration for Hybrid Exchange environment

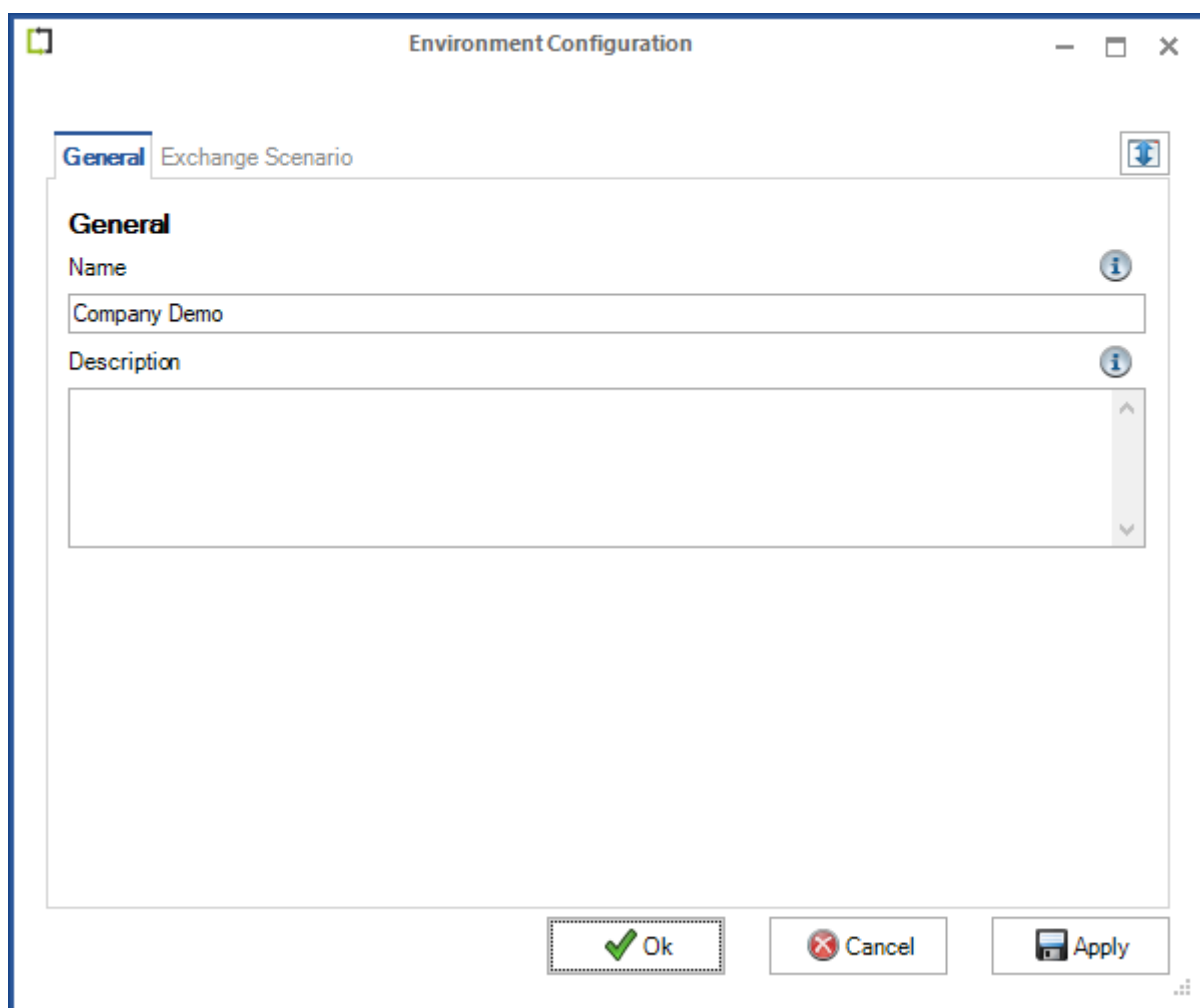
*Important: When creating an environment, it is necessary that you logon to the GALsync server as the GALsync Service account. GALsync uses Windows authentication when accessing its mailbox (when on-premises). When creating an Exchange Online environment with certificate-based authentication the certificate will be stored in the certificate store of the current logged on user. The GALsync account will not be able to find and read the certificate when logged on as a different user.*

If your Exchange Environment is a hybrid, you have the option to establish your synchronization focal point to either on-premises Exchange (Active Directory), or Exchange Online. A connection to on-premises Exchange and Exchange Online is configured in a hybrid environment. Since on-premises Active Directory hosts the master copy of all objects synced through Azure AD Connect, it is recommended an on-premises connection is used.

From the **Action** menu select **Create Environment**.



In the **General** tab, enter a name for the environment and optional description.



The image shows a screenshot of the "Environment Configuration" dialog box. The "General" tab is selected, and the "Exchange Scenario" sub-tab is active. The "Name" field contains the text "Company Demo". The "Description" field is empty. The dialog box has standard Windows window controls (minimize, maximize, close) in the top right corner. At the bottom, there are three buttons: "Ok" (with a green checkmark icon), "Cancel" (with a red X icon), and "Apply" (with a floppy disk icon).

Environment Configuration

General Exchange Scenario

**General**

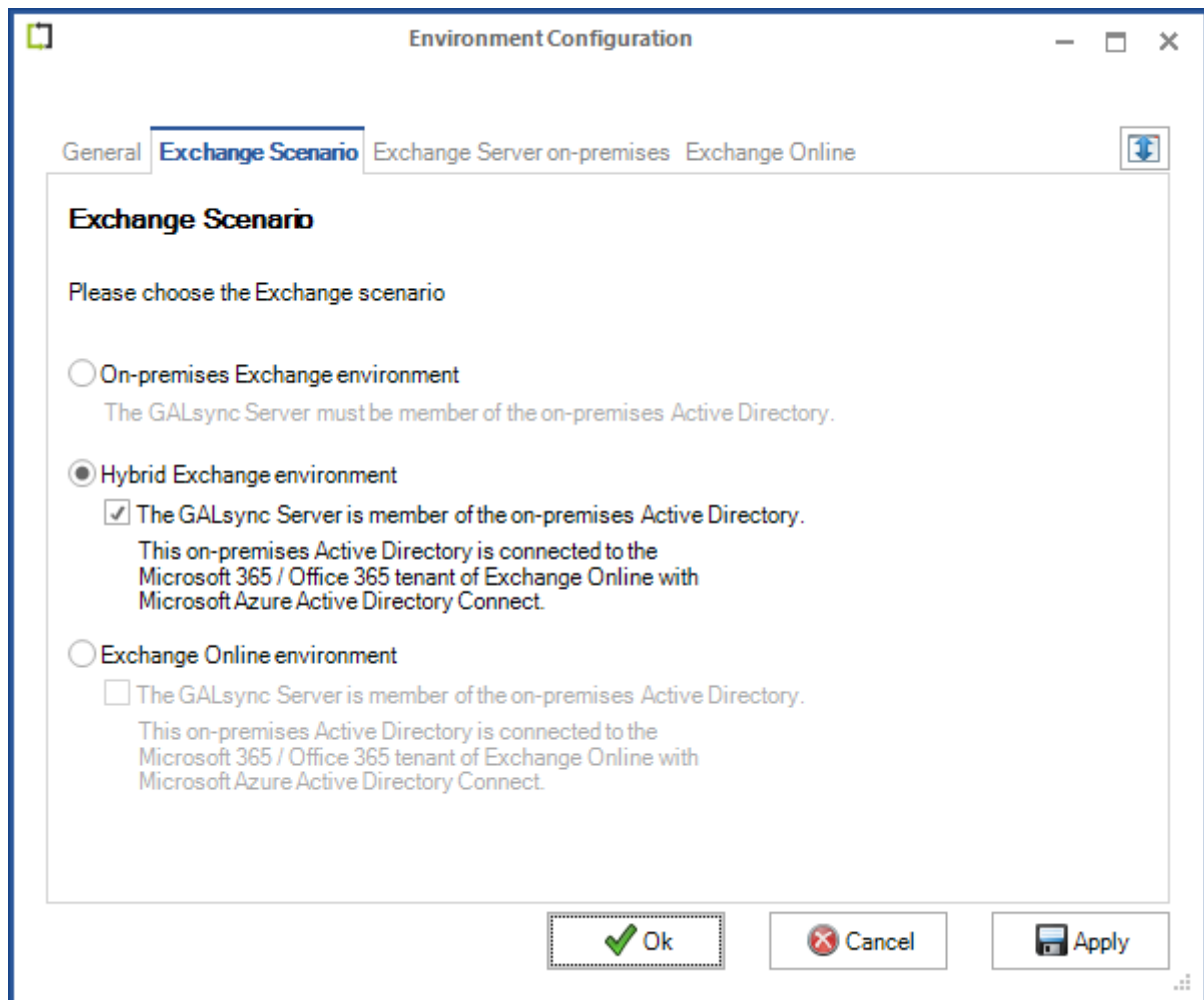
Name i

Company Demo

Description i

Ok Cancel Apply

Click the **Exchange Scenario** tab, then select **Hybrid Exchange environment**. The **Exchange Online** tab will be displayed. After checking the checkbox: **The GALsync Server is a member of the on-premises Active Directory**, the **Exchange Server on-premises** tab will be displayed. Select this tab.



The screenshot shows a Windows-style dialog box titled "Environment Configuration". It has four tabs: "General", "Exchange Scenario" (which is selected and highlighted with a blue border), "Exchange Server on-premises", and "Exchange Online". There is a small icon with a double-headed arrow in the top right corner of the tab bar. The "Exchange Scenario" tab contains the following content:

**Exchange Scenario**

Please choose the Exchange scenario

- ☐ On-premises Exchange environment  
The GALsync Server must be member of the on-premises Active Directory.
- ☒ Hybrid Exchange environment
  - ☒ The GALsync Server is member of the on-premises Active Directory.  
This on-premises Active Directory is connected to the Microsoft 365 / Office 365 tenant of Exchange Online with Microsoft Azure Active Directory Connect.
- ☐ Exchange Online environment
  - ☐ The GALsync Server is member of the on-premises Active Directory.  
This on-premises Active Directory is connected to the Microsoft 365 / Office 365 tenant of Exchange Online with Microsoft Azure Active Directory Connect.

At the bottom of the dialog box are three buttons: "Ok" (with a green checkmark icon), "Cancel" (with a red X icon), and "Apply" (with a floppy disk icon).

Select the **Exchange Server on-premises** tab.

GALsync connects to the on-premises mailbox of the GALsync service account. To test this connection, enter a recipient email address and click **Send test email**.

*Autodiscover is used by default to locate the Exchange Web Services URL and connect to its mailbox. If an error is returned which indicates the EWS URL cannot be resolved, a manual setting has been provided to enter a valid Exchange Web Services URL, such as the one shown below, which resolves the issue in most situations.*

Please note: If the mailbox of the GALsync on-premises service account is located in Exchange Online, it will be necessary to enter the Exchange Web Services URL for the on-premises Exchange Server.

A popup will be returned similar to the one below upon a successful connection to the GALsync mailbox, indicating the email was successfully sent to the target mailbox.

The screenshot shows the 'Environment Configuration' dialog box with the 'Exchange Server on-premises' tab selected. The dialog has three tabs: 'General', 'Exchange Scenario', and 'Exchange Online'. The 'Exchange Server on-premises' tab is active, showing options for 'Use Autodiscover to find the Exchange Web Services URL' (selected) and 'Manual setting' (with a text input field and a search icon). Below this is an 'Exchange Mailbox Test' section with a 'Send a test email to the recipient:' label, an 'Email address' input field, and a 'Send test email' button. At the bottom are 'Ok', 'Cancel', and 'Apply' buttons.

Environment Configuration

General Exchange Scenario **Exchange Server on-premises** Exchange Online

**Exchange Server on-premises**

Manage the settings for the on-premises Exchange environment.

☒ Use Autodiscover to find the Exchange Web Services URL ?

☐ Manual setting 🔍

e.g. `https://casserver.domain.local/EWS/Exchange.asmx`

**Exchange Mailbox Test**

Send a test email to the recipient:

Email address

?

☒ Ok

Select the **Exchange Online** tab.

The screenshot shows the 'Environment Configuration' dialog box with the 'Exchange Online' tab selected. The dialog has a title bar with standard window controls. Below the title bar, there are four tabs: 'General', 'Exchange Scenario', 'Exchange Server on-premises', and 'Exchange Online'. The 'Exchange Online' tab is active, showing a section titled 'Exchange Online' with a description: 'Manage the settings for the Exchange Online tenant. All accounts of the Microsoft 365 tenant have Exchange Administrator role permission for Exchange Online.' Below this, there are three main sections: 'Credentials', 'Organization Settings', and 'Remote PowerShell Connection Test'. The 'Credentials' section has a table with columns 'Username' and 'Max. Connection'. The 'Organization Settings' section has a table with 'Instance hosted by' and 'Exchange Web Services URL'. The 'Remote PowerShell Connection Test' section has a 'Test' button and a 'Show log' button. Below this is the 'Exchange Mailbox Test' section with an 'Email address' input field and a 'Send test email' button. At the bottom of the dialog are 'Ok', 'Cancel', and 'Apply' buttons.

Environment Configuration

General Exchange Scenario Exchange Server on-premises **Exchange Online**

**Exchange Online**

Manage the settings for the Exchange Online tenant.  
All accounts of the Microsoft 365 tenant have Exchange Administrator role permission for Exchange Online.

**Credentials**

Username	Max. Connection
----------	-----------------

**Organization Settings**

Instance hosted by	Microsoft 365 or Microsoft 365 GCC Microsoft Azure public cloud
Exchange Web Services URL	https://outlook.office365.com/EWS/Exchange.asmx

**Remote PowerShell Connection Test**

Please test the Remote PowerShell connection to Exchange Online

Test Show log

**Exchange Mailbox Test**

Send a test email to the recipient:

Email address

Send test email

Ok Cancel Apply

There are two available methods to establish a connection to Exchange Online.









1. The **Add** button on the left, will open a dialog window in which to configure **certificate-based authentication** via **App registration** for the Exchange Online tenant.

General Exchange Scenario **Exchange Online**

### Exchange Online


Manage the settings for the Exchange Online tenant.  
All accounts of the Microsoft 365 tenant have Exchange Administrator role permission for Exchange C


Credentials


 Add   Add   Modify   Remove 

Exchange Online App Registration

Corresponding settings for the Enterprise Application in the Microsoft Entra ID (formerly Azure AD) App registrations that enables access to Exchange Online.

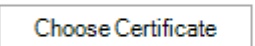
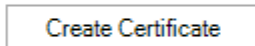

Organization / Tenant 



Application Display Name 


Application ID 


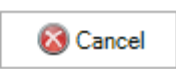
Certificate

Friendly Name	FriendlyName
Not After	Not After
Subject	Subject
Thumbprint	Thumbprint
Has PrivateKey	Has PrivateKey
User	User

Maximum Connection   ☒ Set as primary account 

Email Address 

A detailed description is in chapter  
**Exchange Online certificate-based authentication via App Registration**



2. The **Add** button on the right, will open a dialog window in which to configure **user-based authentication** via **Service Account** for the Exchange Online tenant.

*Please note, that user-based authentication via OAuth 2.0 works only for the Microsoft Azure Public Cloud instance. If your Microsoft 365/Office 365 instance is hosted by a national cloud, please configure **Exchange Online certificate-based authentication** via **App Registration**.*

General Exchange Scenario **Exchange Online**

### Exchange Online

Manage the settings for the Exchange Online tenant.  
All accounts of the Microsoft 365 tenant have Exchange Administrator role permission for Exchange C

Credentials

Add Add Modify Remove

**Exchange Online Credentials** [X]

User-ID:

Password:

E-mail:

Maximum Connection:  ☒ Set as primary account

The authentication method for Exchange Web Services of the Office 365 tenant

Please login for the Modern Authentication OAuth 2.0

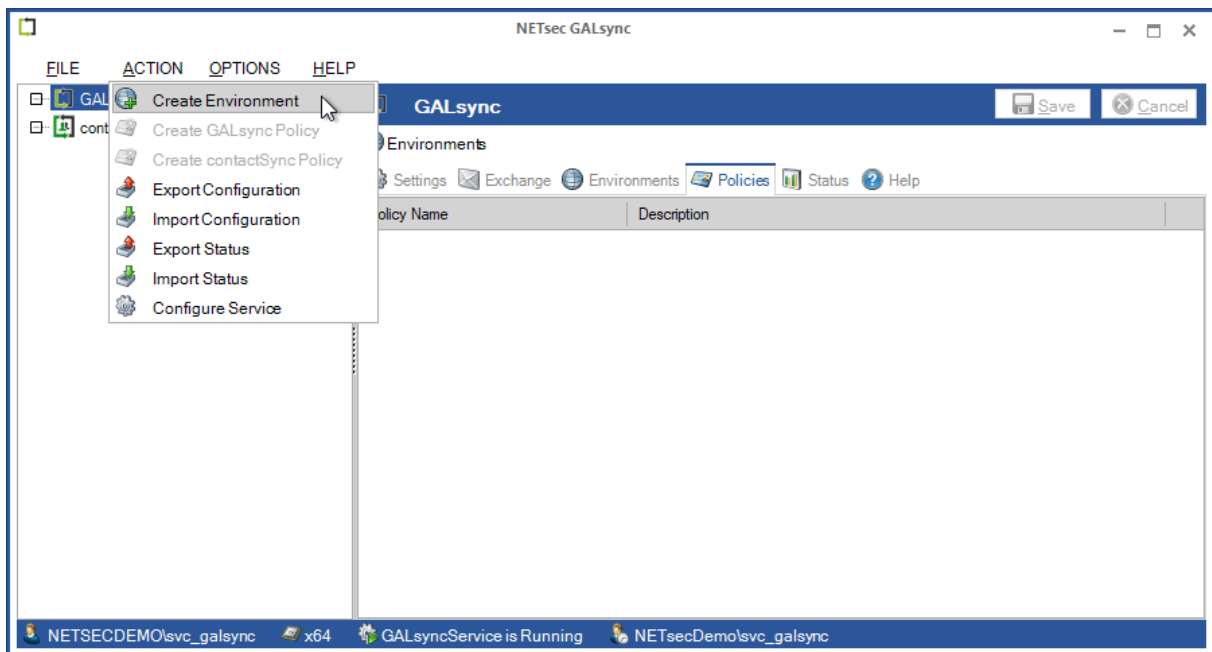
☒ Modern Authentication OAuth 2.0

A detailed description is in chapter  
**Exchange Online authentication via Service Account**

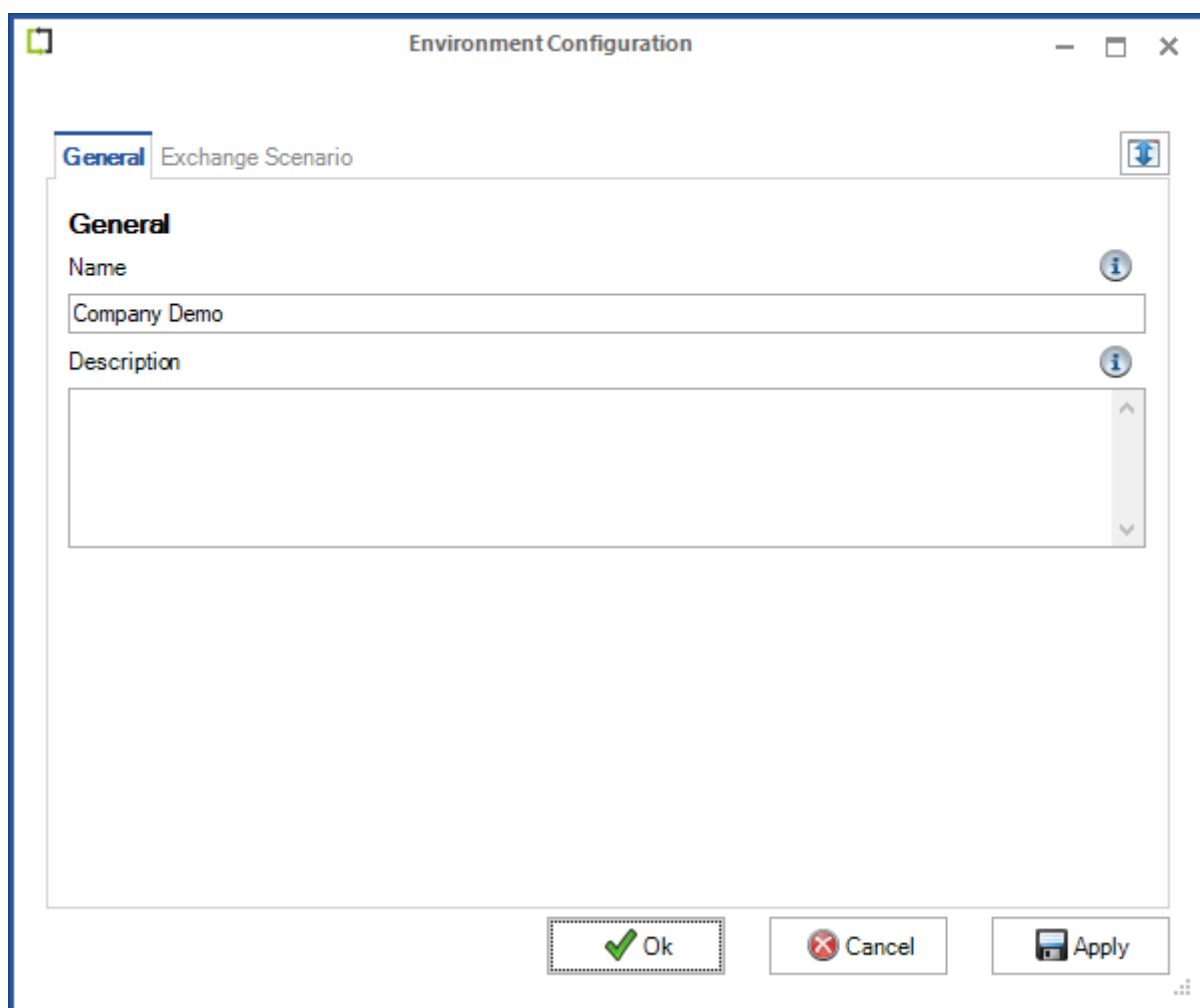
## Create Environment Configuration for Exchange Online environment

*Important: When creating an environment, it is necessary that you logon to the GALsync server as the GALsync Service account. GALsync uses Windows authentication when accessing its mailbox (when on-premises). When creating an Exchange Online environment with certificate-based authentication the certificate will be stored in the certificate store of the current logged on user. The GALsync account will not be able to find and read the certificate when logged on as a different user.*

From the **Action** menu select **Create Environment**.



In the **General** tab, enter a name for the environment and an optional description.



The screenshot shows a window titled "Environment Configuration" with a standard Windows title bar (minimize, maximize, close buttons). Inside the window, there is a tabbed interface. The "General" tab is selected, and the "Exchange Scenario" sub-tab is active. Below the tabs, the word "General" is displayed in bold. There are two input fields: "Name" and "Description". The "Name" field contains the text "Company Demo". The "Description" field is empty. Both fields have an information icon (i) to their right. At the bottom of the window, there are three buttons: "Ok" (with a green checkmark icon), "Cancel" (with a red X icon), and "Apply" (with a floppy disk icon).

Environment Configuration

General Exchange Scenario

**General**

Name ⓘ

Company Demo

Description ⓘ

Ok Cancel Apply

Select the **Exchange Scenario** tab, then select **Exchange Online environment**.

Check **The GALsync server is a member of the on-premises Active Directory**, if applicable.

The screenshot shows a window titled "Environment Configuration" with three tabs: "General", "Exchange Scenario", and "Exchange Online". The "Exchange Scenario" tab is selected. Inside the tab, there is a section titled "Exchange Scenario" with the instruction "Please choose the Exchange scenario". There are three radio button options: "On-premises Exchange environment", "Hybrid Exchange environment", and "Exchange Online environment". The "Exchange Online environment" option is selected. Below each radio button is a checkbox labeled "The GALsync Server is member of the on-premises Active Directory." and a descriptive sentence. For the "Exchange Online environment", both the checkbox and the sentence are present. At the bottom of the dialog, there are three buttons: "Ok" (with a green checkmark icon), "Cancel" (with a red X icon), and "Apply" (with a floppy disk icon).

Environment Configuration

General Exchange Scenario Exchange Online

**Exchange Scenario**

Please choose the Exchange scenario

☐ On-premises Exchange environment  
The GALsync Server must be member of the on-premises Active Directory.

☐ Hybrid Exchange environment  
☒ The GALsync Server is member of the on-premises Active Directory.  
This on-premises Active Directory is connected to the Microsoft 365 / Office 365 tenant of Exchange Online with Microsoft Azure Active Directory Connect.

☒ Exchange Online environment  
☒ The GALsync Server is member of the on-premises Active Directory.  
This on-premises Active Directory is connected to the Microsoft 365 / Office 365 tenant of Exchange Online with Microsoft Azure Active Directory Connect.

Ok Cancel Apply

Select the **Exchange Online** tab.

The screenshot shows the 'Environment Configuration' window with the 'Exchange Online' tab selected. The window has a title bar with standard minimize, maximize, and close buttons. Below the title bar are three tabs: 'General', 'Exchange Scenario', and 'Exchange Online'. The 'Exchange Online' tab is active and contains the following content:

**Exchange Online**

Manage the settings for the Exchange Online tenant.  
All accounts of the Microsoft 365 tenant have Exchange Administrator role permission for Exchange Online.

**Credentials**

At the top of the Credentials section are four buttons: 'Add' (with a plus icon), 'Add' (with a person icon), 'Modify' (with a pencil icon), and 'Remove' (with a red X icon). Below these buttons is a table with two columns: 'Username' and 'Max. Connection'. The table is currently empty.

**Organization Settings**

Below the Credentials section is the 'Organization Settings' section. It contains a single row with the label 'Instance hosted by' and the value 'Microsoft 365 or Microsoft 365 GCC Microsoft Azure public cloud'.

At the bottom of the window are three buttons: 'Ok' (with a green checkmark icon), 'Cancel' (with a red X icon), and 'Apply' (with a floppy disk icon).

There are two available methods to establish a connection to Exchange Online.









1. The **Add** button on the left, will open a dialog window in which to configure **certificate-based authentication** via **App registration** for the Exchange Online tenant.

General Exchange Scenario **Exchange Online**

### Exchange Online


Manage the settings for the Exchange Online tenant.  
All accounts of the Microsoft 365 tenant have Exchange Administrator role permission for Exchange Online.


Credentials


 Add   Add   Modify   Remove 

Exchange Online App Registration

Corresponding settings for the Enterprise Application in the Microsoft Entra ID (formerly Azure AD) App registrations that enables access to Exchange Online.

Organization / Tenant 


Application Display Name 



Application ID 


Certificate


Friendly Name	FriendlyName
Not After	Not After
Subject	Subject
Thumbprint	Thumbprint
Has PrivateKey	Has PrivateKey
User	User


Choose Certificate

Create Certificate 

Maximum Connection   ☒ Set as primary account 

Email Address 

 Apply

 Cancel

A detailed description is in chapter  
**Exchange Online certificate-based authentication via App Registration**

2. The **Add** button on the right, will open a dialog window in which to configure **user-based authentication** via **Service Account** for the Exchange Online tenant.

*Please note, that user-based authentication via OAuth 2.0 works only for the Microsoft Azure Public Cloud instance. If your Microsoft 365/Office 365 instance is hosted by a national cloud, please configure **Exchange Online certificate-based authentication** via **App Registration**.*

General Exchange Scenario **Exchange Online**

### Exchange Online

Manage the settings for the Exchange Online tenant.  
All accounts of the Microsoft 365 tenant have Exchange Administrator role permission for Exchange C

Credentials

Add Add Modify Remove

**Exchange Online Credentials** [X]

User-ID:

Password:

E-mail:

Maximum Connection:  ☒ Set as primary account

The authentication method for Exchange Web Services of the Office 365 tenant

Please login for the Modern Authentication OAuth 2.0

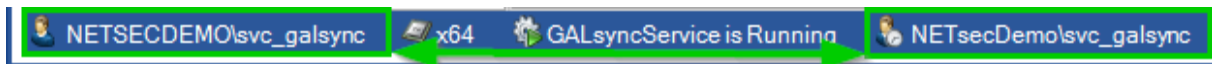
☒ Modern Authentication OAuth 2.0

A detailed description is in chapter  
**Exchange Online authentication via Service Account**

## Exchange Online certificate-based authentication via App Registration

First, please verify the GALsync GUI is running in the credentials of the local GALsync service account, otherwise GALsync cannot decrypt the Application Id and cannot find the certificate later.

This can be confirmed on the information bar at the bottom of the GALsync GUI.



Register an Enterprise Application in the **Microsoft Entra admin center** (formerly known as **Azure Active Directory admin center**) and enter the corresponding values in the **Exchange Online App Registration** dialog.

A screenshot of the 'Exchange Online App Registration' dialog box. The dialog has a title bar with a close button. Below the title bar, there is a description: 'Corresponding settings for the Enterprise Application in the Microsoft Entra ID (formerly Azure AD) App registrations that enables access to Exchange Online.' The dialog contains several input fields: 'Organization / Tenant', 'Application Display Name', and 'Application ID'. Below these is a 'Certificate' section with a table of fields: 'Friedly Name', 'Not After', 'Subject', 'Thumbprint', 'Has PrivateKey', and 'User'. Below the table are two buttons: 'Choose Certificate' and 'Create Certificate'. At the bottom, there is a 'Maximum Connection' field with a value of '2' and a 'Set as primary account' checkbox which is checked. There is also an 'Email Address' field. At the very bottom are 'Apply' and 'Cancel' buttons.



The following description is based on the **Microsoft Documentation** article:

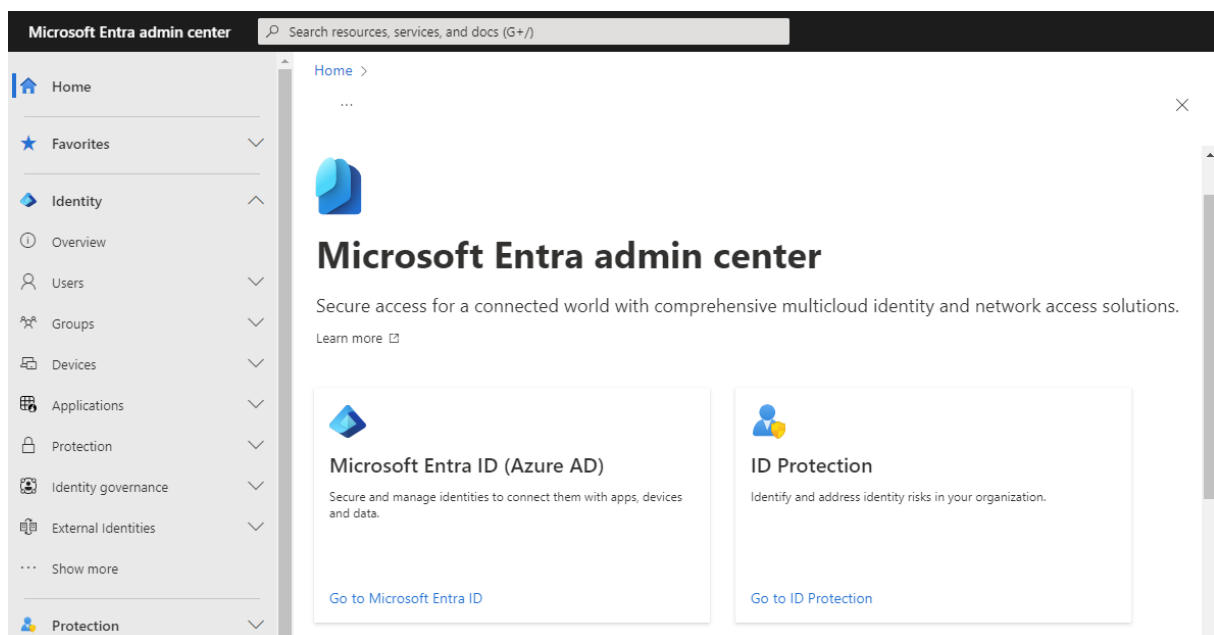
## **App-only authentication for unattended scripts in Exchange Online PowerShell and Security & Compliance PowerShell**

<https://learn.microsoft.com/en-us/powershell/exchange/app-only-auth-powershell-v2?view=exchange-ps>

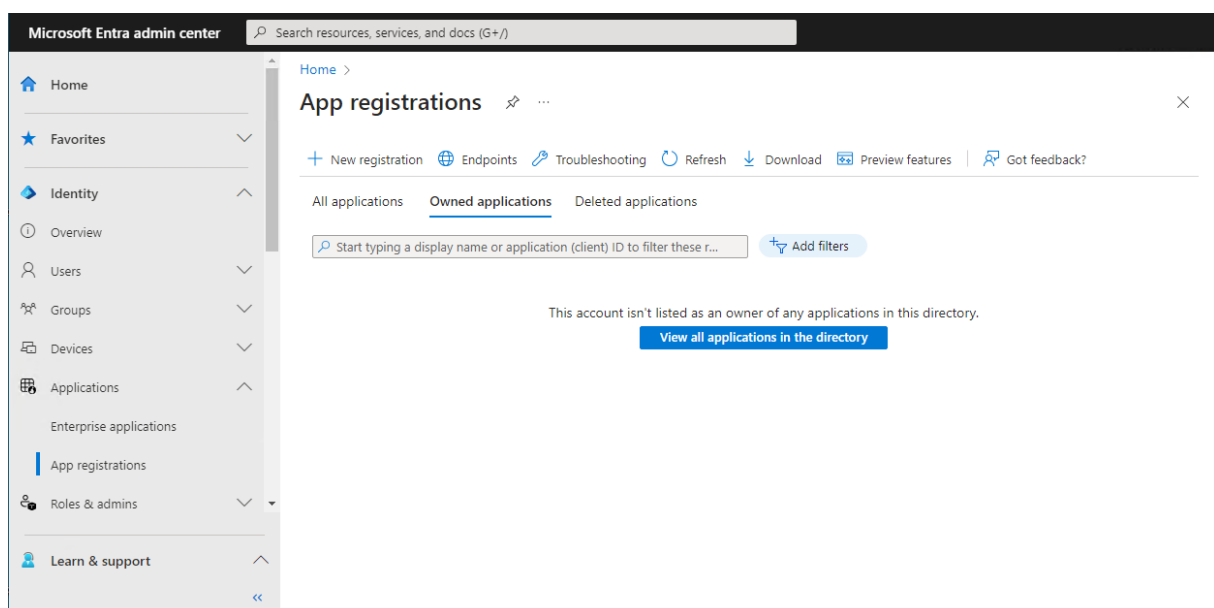
## Register an Enterprise Application in Microsoft Entra ID

Liton to the **Microsoft Entra admin center** <https://entra.microsoft.com>

as a global administrator and expand **Identity** (formerly Azure Active Directory).



Expand **Applications** and go to **App registrations**. Then select **New registration**.



Microsoft Entra admin center

Home > App registrations > Register an application

\* Name  
The user-facing display name for this application (this can be changed later).  
GALsync Enterprise App

Supported account types  
Who can use this application or access this API?  
☒ Accounts in this organizational directory only (NETsec Demo only - Single tenant)  
☐ Accounts in any organizational directory (Any Azure AD directory - Multitenant)  
☐ Accounts in any organizational directory (Any Azure AD directory - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)  
☐ Personal Microsoft accounts only  
[Help me choose...](#)

By proceeding, you agree to the Microsoft Platform Policies

Register

Enter a name for the **Application**.

In this example, it has been named **GALsync Enterprise App**.

Select the **Accounts in this organizational directory only (<YourOrganizationName> only - Single tenant)** radio button and click **Register**.

Transfer the information of the registered Application to the **Exchange Online App Registration** dialog.

Microsoft Entra admin center

Home > App registrations > GALsync Enterprise App

Exchange Online App Registration

Corresponding settings for the Enterprise Application in the Microsoft Entra ID (formerly Azure AD) App registrations that enables access to Exchange Online.

Organization / Tenant  
netsecdemotenant.onmicrosoft.com

Application Display Name  
GALsync Enterprise App

Application ID  
9b5fb788-77e1-4225-af74-a96f7c8fed5d

Certificate

Friendly Name	FriendlyName
Not After	Not After
Subject	Subject
Thumbprint	Thumbprint
Has PrivateKey	Has PrivateKey
User	User

Choose Certificate Create Certificate

Maximum Connection 2 Set as primary account

Email Address

Apply Cancel

Essentials

Display name  
GALsync Enterprise App

Application (client) ID  
9b5fb788-77e1-4225-af74-a96f7c8fed5d

Object ID  
8b7f64a5-68a3-4ec9-84eb-16dca3bd90e1

Directory (tenant) ID  
e9148e4a-2027-4845-8c11-8c056e5acb8c

Supported account types  
My organization only

Client credentials  
Add a certificate or secret

Redirect URIs  
Add a Redirect URI

Application ID URI  
Add an Application ID URI

Managed application in local directory  
GALsync Enterprise App

Welcome to the new and improved App registrations. Looking to learn how it's changed from App registrations (Legacy)? [Learn more](#)

Get Started Documentation

Build your application with the Microsoft identity platform

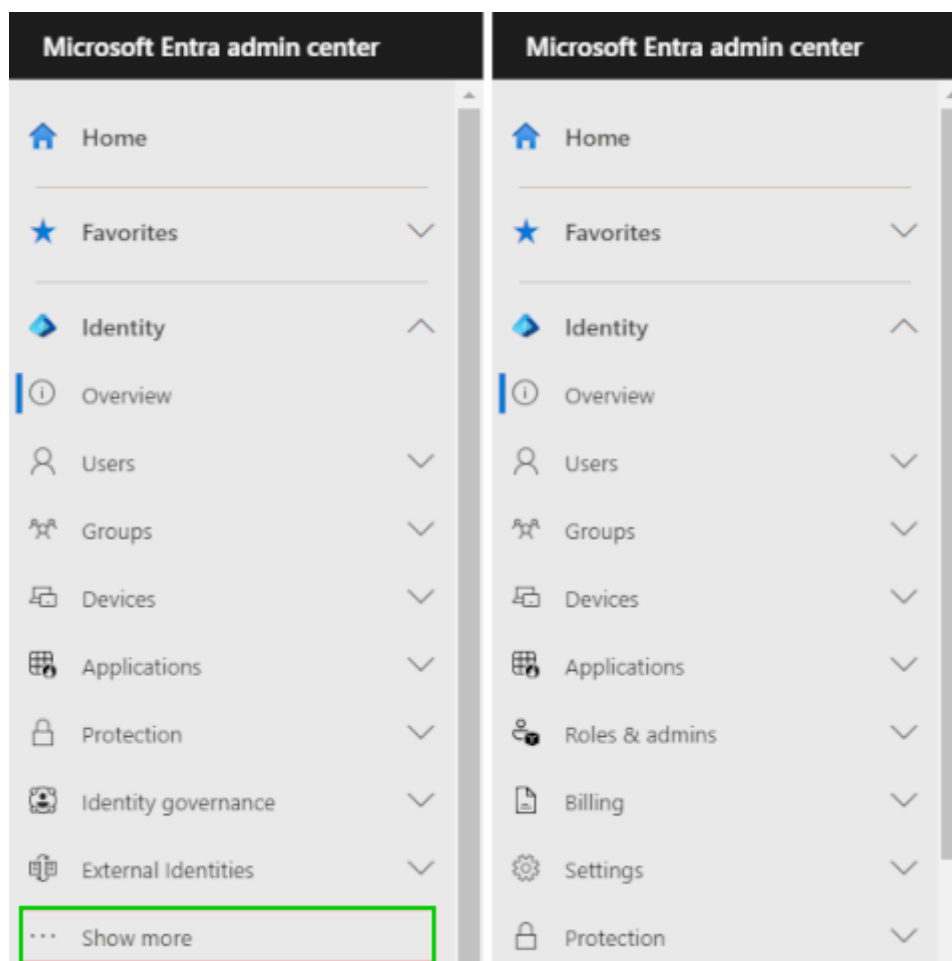
**Organization / Tenant** needs the **.onmicrosoft.com** domain name of the Microsoft 365 tenant. Otherwise, you may encounter cryptic permission issues when you run a policy in the app context. The next chapter will describe where to find the domain name of the Microsoft 365 tenant.

**Application Display Name** must have the value of the **Display name** of the registered Application.

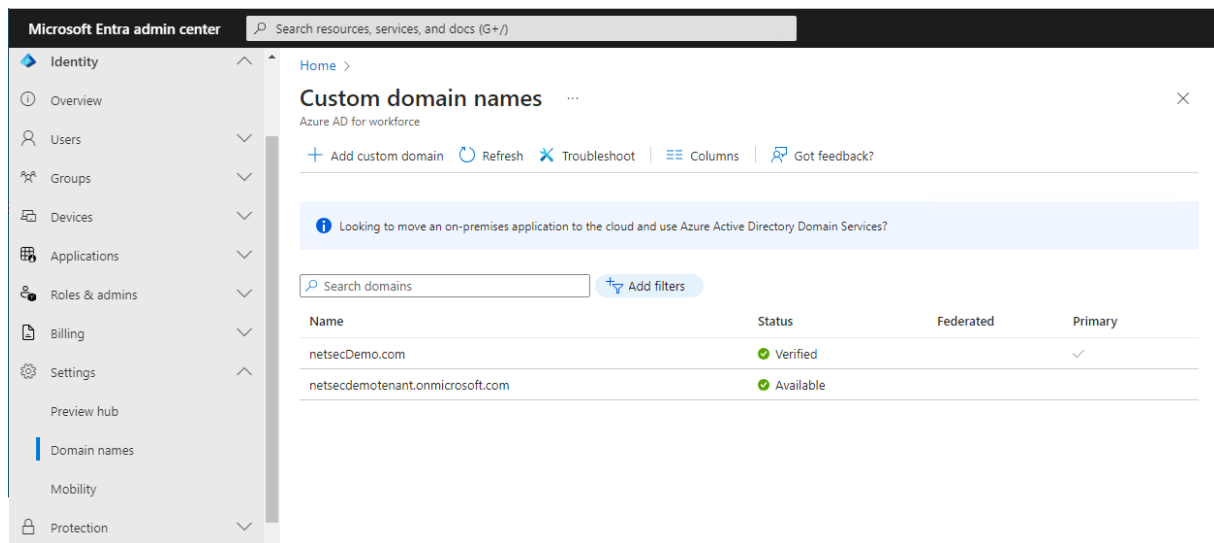
**Application ID** must have the value of the **Application (Client) ID** of the registered Application.

Where to find the domain name of the Microsoft 365 tenant?

Click **Show more** to see **Settings**



Expand **Settings**, go to **Domain names** and use the **.onmicrosoft.com** domain name.



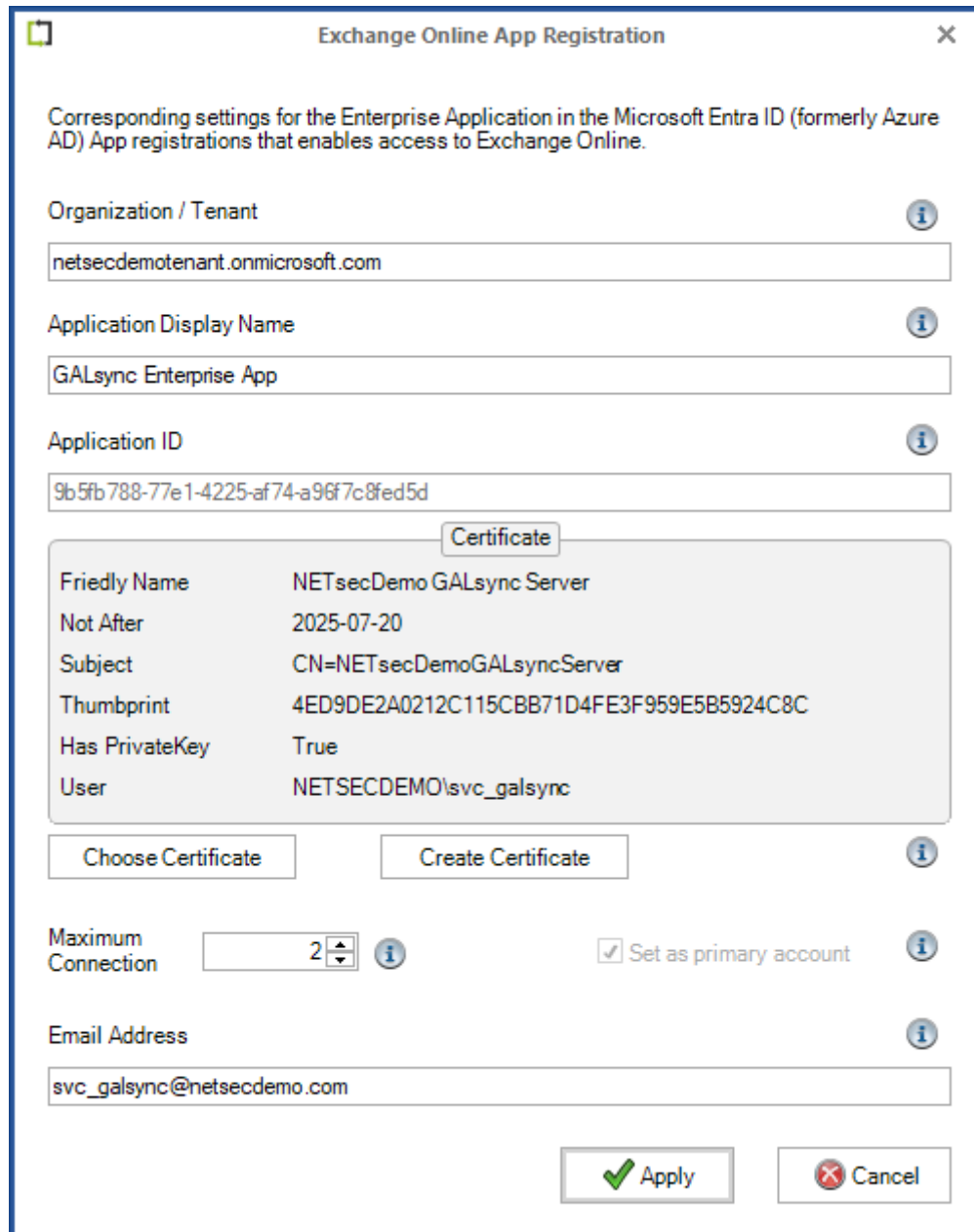
The screenshot shows the Microsoft Entra admin center interface. The left sidebar contains the navigation menu with the following items: Identity, Overview, Users, Groups, Devices, Applications, Roles & admins, Billing, Settings, Preview hub, Domain names (selected), Mobility, and Protection. The main content area is titled 'Custom domain names' and includes a search bar, a table of domain names, and a 'Got feedback?' link.

Name	Status	Federated	Primary
netsecDemo.com	Verified		✓
netsecdemotenant.onmicrosoft.com	Available		

*Please do not confuse the Microsoft 365 tenant domain names with the Exchange Online accepted domains.*

## Certificate for the registered Application

For app-only authentication in **Microsoft Entra ID** (formerly known as Azure Active Directory), you typically use a certificate to request access. Anyone who has the certificate and its private key can use the application, and the permissions granted to the application.



The image shows a screenshot of the 'Exchange Online App Registration' dialog box. It contains several fields for configuring an application: 'Organization / Tenant' (netsecdemotenant.onmicrosoft.com), 'Application Display Name' (GALsync Enterprise App), and 'Application ID' (9b5fb788-77e1-4225-af74-a96f7c8fed5d). A 'Certificate' tab is active, displaying details for a certificate: 'Friendly Name' (NETsecDemo GALsync Server), 'Not After' (2025-07-20), 'Subject' (CN=NETsecDemoGALsyncServer), 'Thumbprint' (4ED9DE2A0212C115CBB71D4FE3F959E5B5924C8C), 'Has PrivateKey' (True), and 'User' (NETSECDEMO\svc\_galsync). Below this, there are 'Choose Certificate' and 'Create Certificate' buttons. At the bottom, there are fields for 'Maximum Connection' (set to 2) and 'Email Address' (svc\_galsync@netsecdemo.com), with a 'Set as primary account' checkbox checked. 'Apply' and 'Cancel' buttons are at the bottom right.

Exchange Online App Registration

Corresponding settings for the Enterprise Application in the Microsoft Entra ID (formerly Azure AD) App registrations that enables access to Exchange Online.

Organization / Tenant  
netsecdemotenant.onmicrosoft.com

Application Display Name  
GALsync Enterprise App

Application ID  
9b5fb788-77e1-4225-af74-a96f7c8fed5d

**Certificate**

Friendly Name	NETsecDemo GALsync Server
Not After	2025-07-20
Subject	CN=NETsecDemoGALsyncServer
Thumbprint	4ED9DE2A0212C115CBB71D4FE3F959E5B5924C8C
Has PrivateKey	True
User	NETSECDEMO\svc_galsync

Choose Certificate    Create Certificate

Maximum Connection: 2    ☒ Set as primary account

Email Address  
svc\_galsync@netsecdemo.com

Apply    Cancel

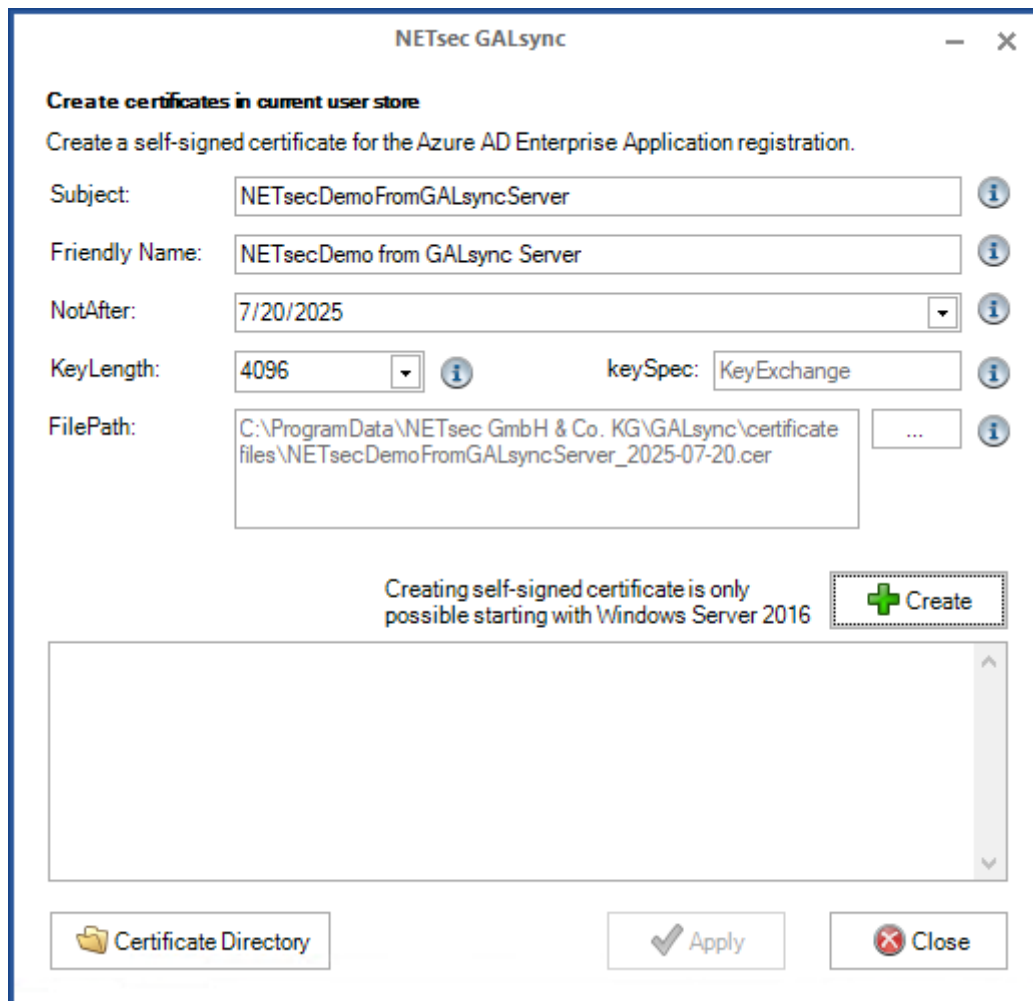
## Choose Certificate

Choose an existing certificate and its private key from the user certificate store of the current user, which runs the GALsync GUI.

The corresponding public key file of this selected certificate must be uploaded to the registered Application.

## Create Certificate

Create a self-signed certificate, which will be saved in the current user certificate store and will be used to authenticate your Application against **Identity** (formerly Azure Active Directory), while requesting the app-only access token.

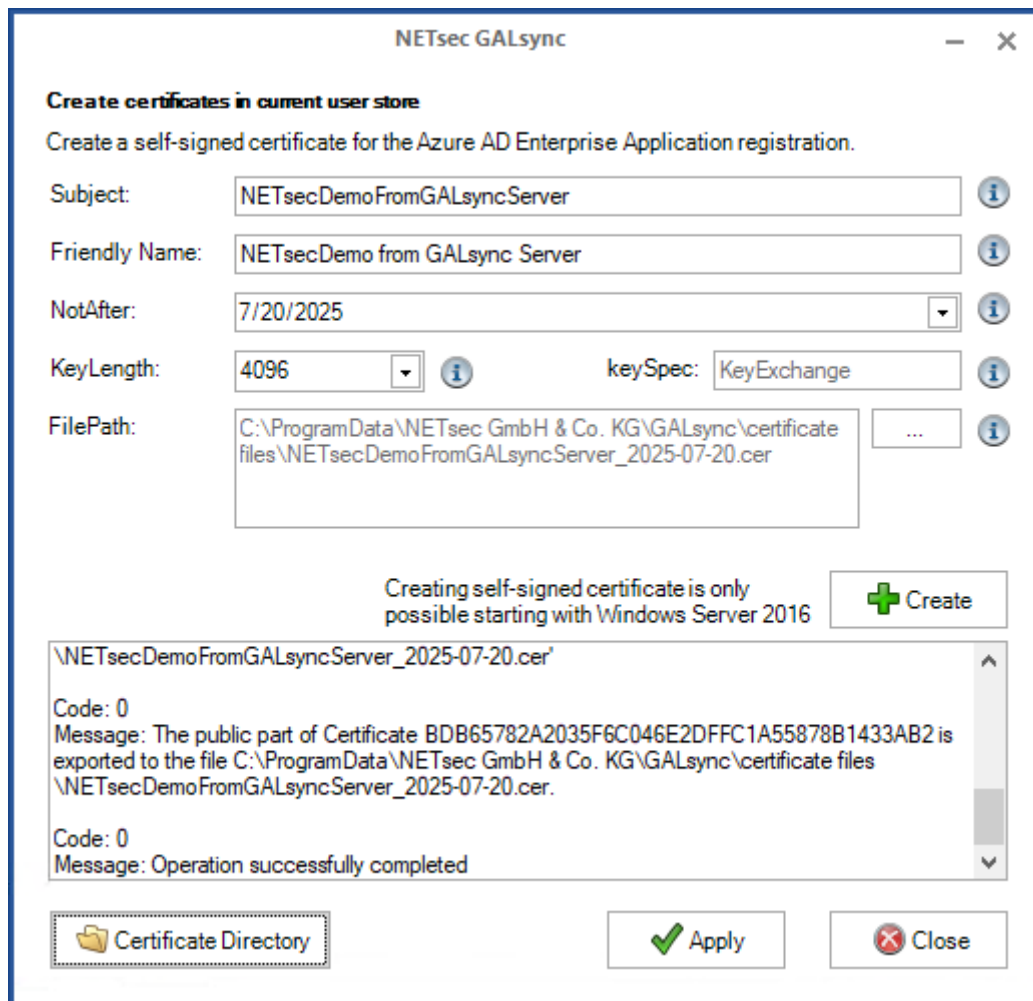


The screenshot shows a Windows dialog box titled "NETsec GALsync". It has a close button (X) in the top right corner. The main heading is "Create certificates in current user store". Below this, it says "Create a self-signed certificate for the Azure AD Enterprise Application registration." The dialog contains several input fields: "Subject:" with the value "NETsecDemoFromGALsyncServer", "Friendly Name:" with the value "NETsecDemo from GALsync Server", "NotAfter:" with a date picker set to "7/20/2025", "KeyLength:" with a dropdown set to "4096", and "keySpec:" with a dropdown set to "KeyExchange". The "FilePath:" field shows a long path: "C:\ProgramData\NETsec GmbH & Co. KG\GALsync\certificate files\NETsecDemoFromGALsyncServer\_2025-07-20.cer". There are information icons (i) next to each input field. Below the fields, a message states "Creating self-signed certificate is only possible starting with Windows Server 2016" next to a green plus icon and the word "Create". At the bottom, there are three buttons: "Certificate Directory" (with a folder icon), "Apply" (with a checkmark icon), and "Close" (with a red X icon).

Enter the **Subject**, and **Friendly Name** of the certificate.

In the example above, the forest name (NETsecDemo) and the name of the server (GALsync Server) from which the connection is established will be incorporated in both.

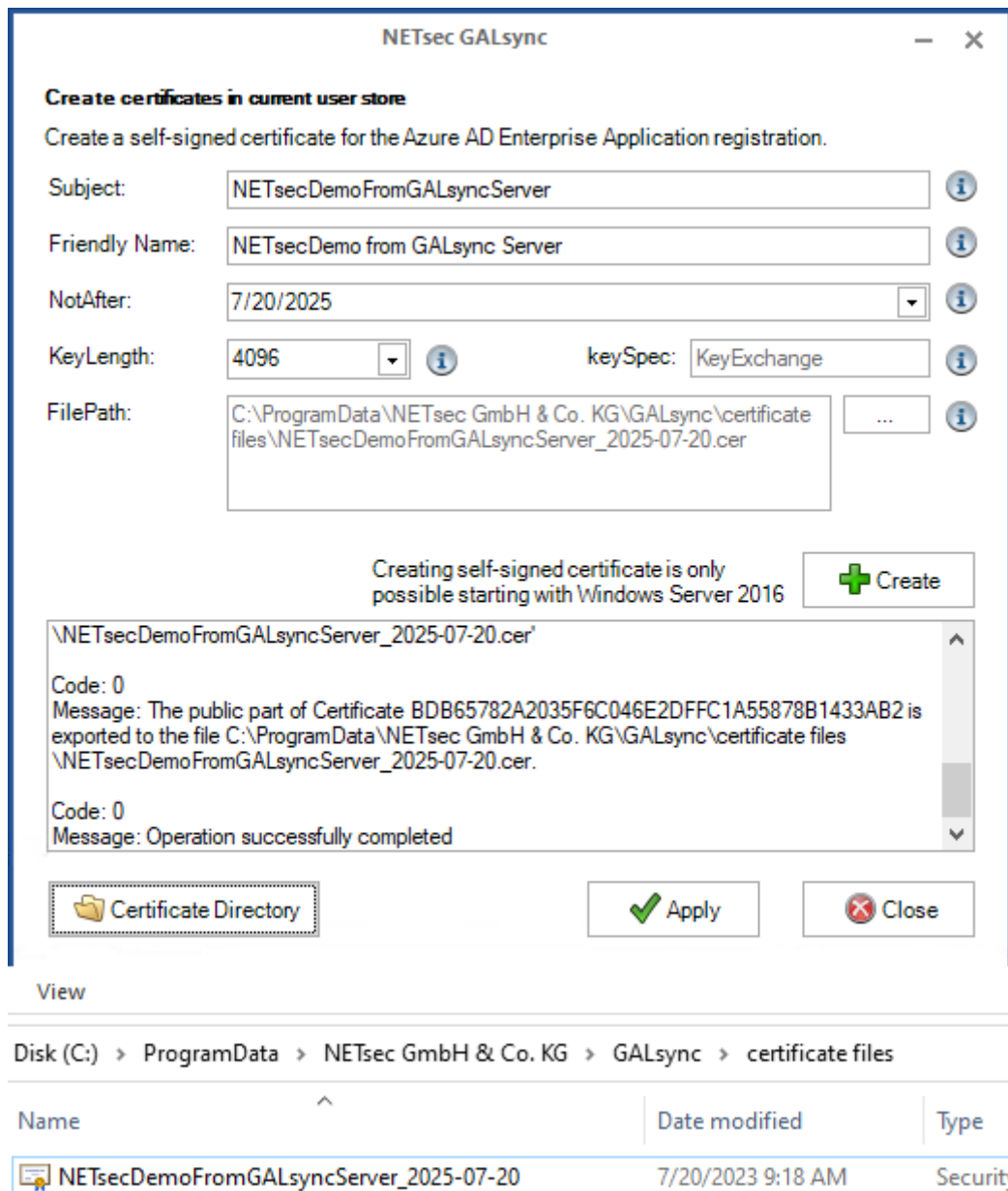
Click **Create** to generate a new certificate.



The public key file is created in the default path

```
C:\ProgramData\NETsec GmbH & Co. KG\GALsync\certificate files\
```

Click on the **Certificate Directory** button to open the folder in **File Explorer**

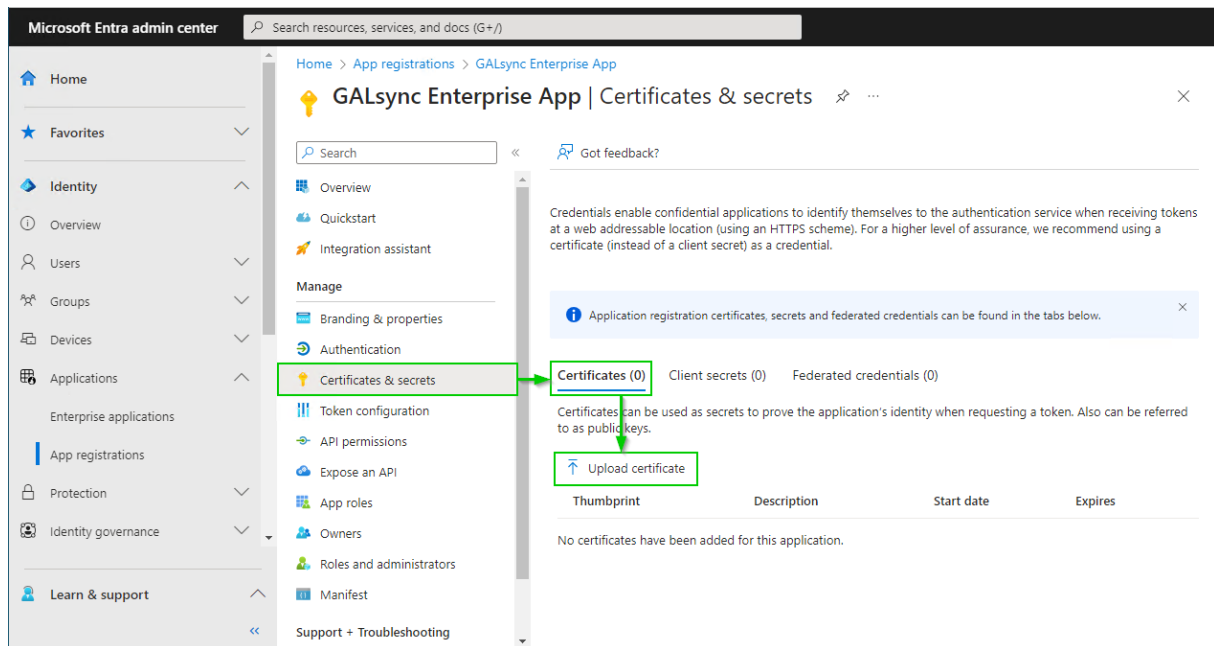


Then click **Apply** to close the Create Certificate dialog.



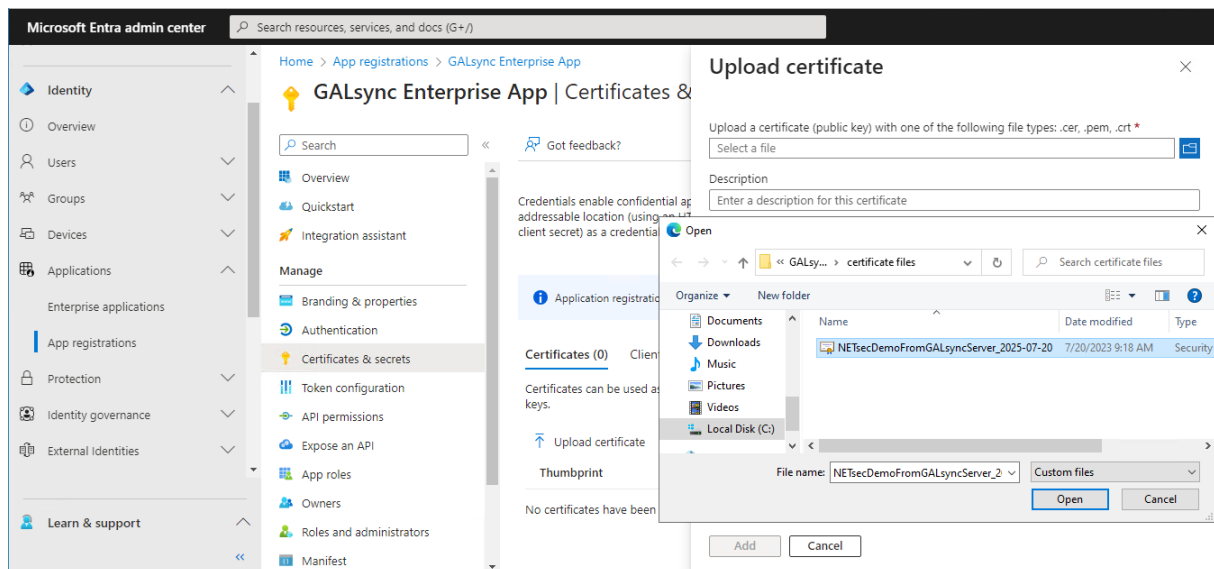
## Upload certificate file for the registered Application

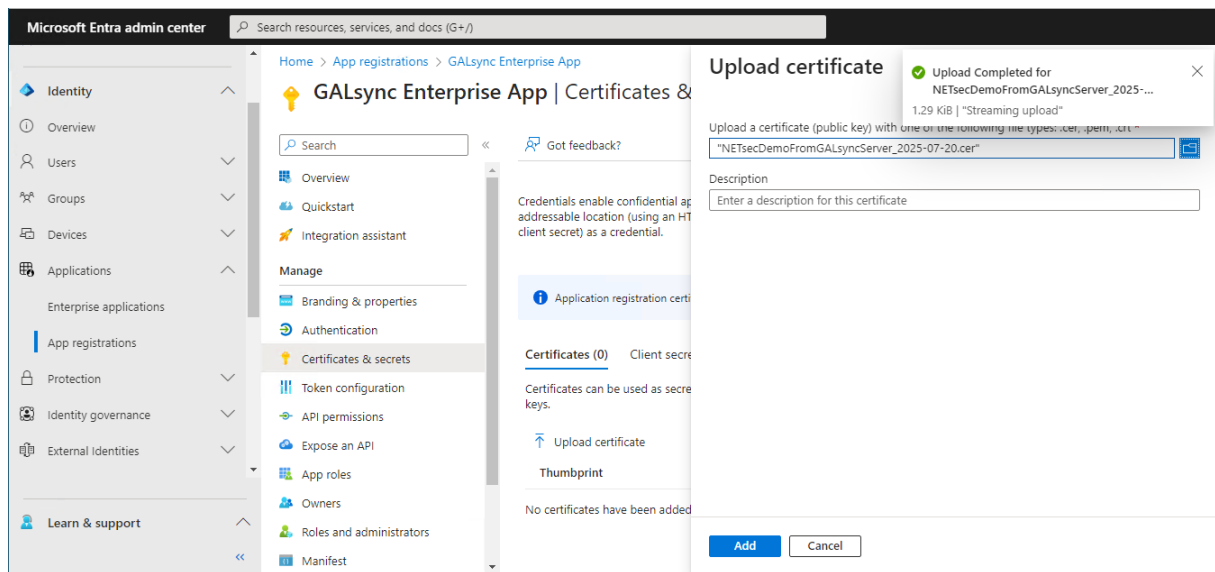
Go to **Certificates & secrets** of the registered Application in **Microsoft Entra ID** (Azure AD), and select the **Certificates** tab.



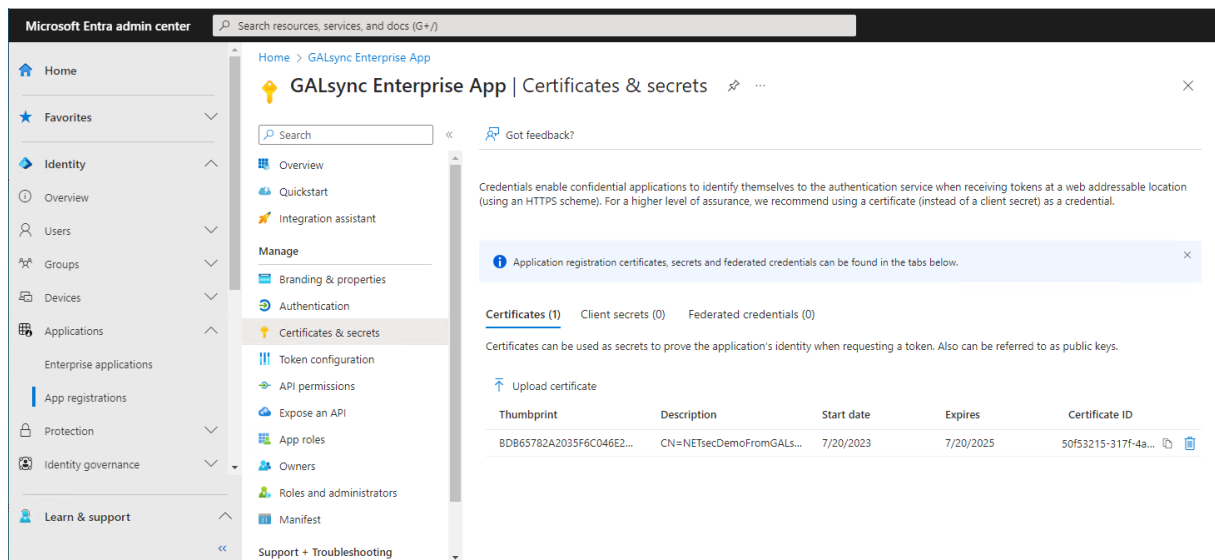
Select **Upload certificate**, then browse to the location where the certificate was saved. Select, and open it. The default path is:

```
C:\ProgramData\NETsec GmbH & Co. KG\GALsync\certificate files
```



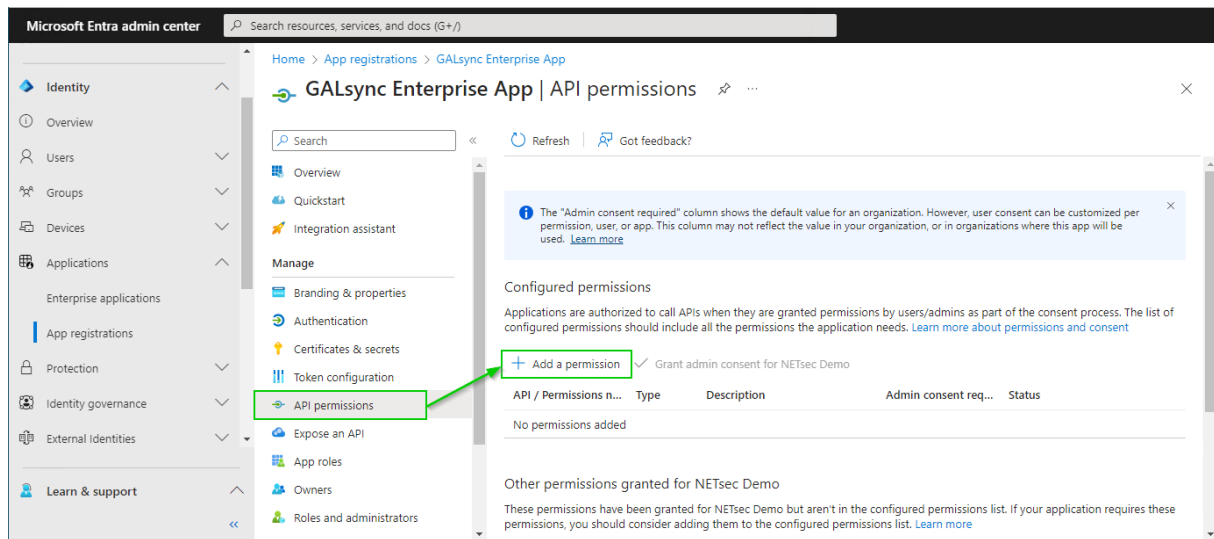


**Add** the selected certificate.

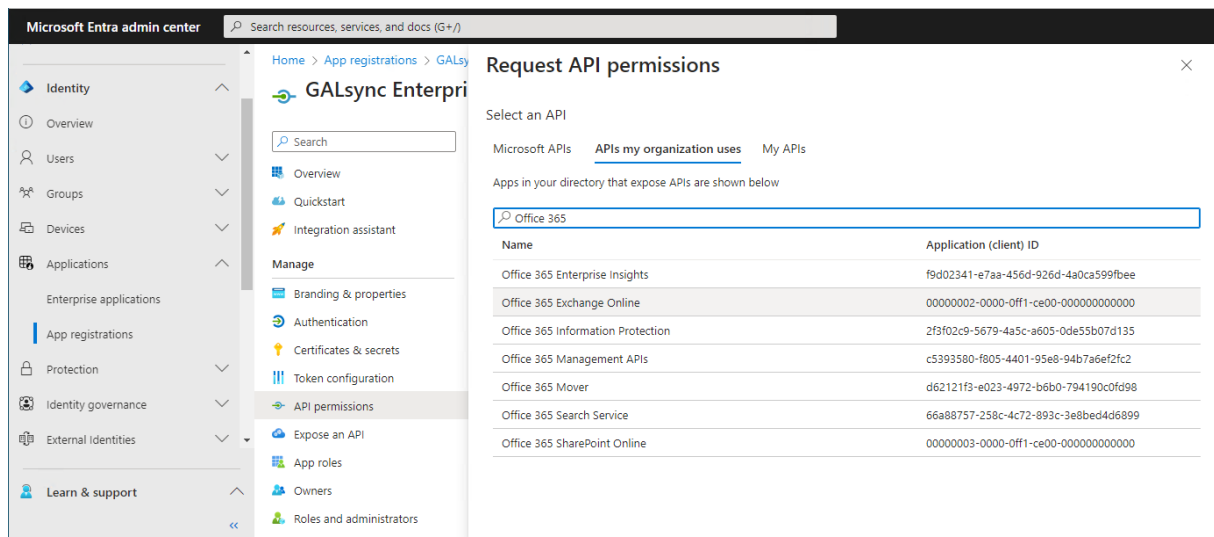


## Assign API permissions to the registered Application

Go to **API permissions**, then select **Add a permission**

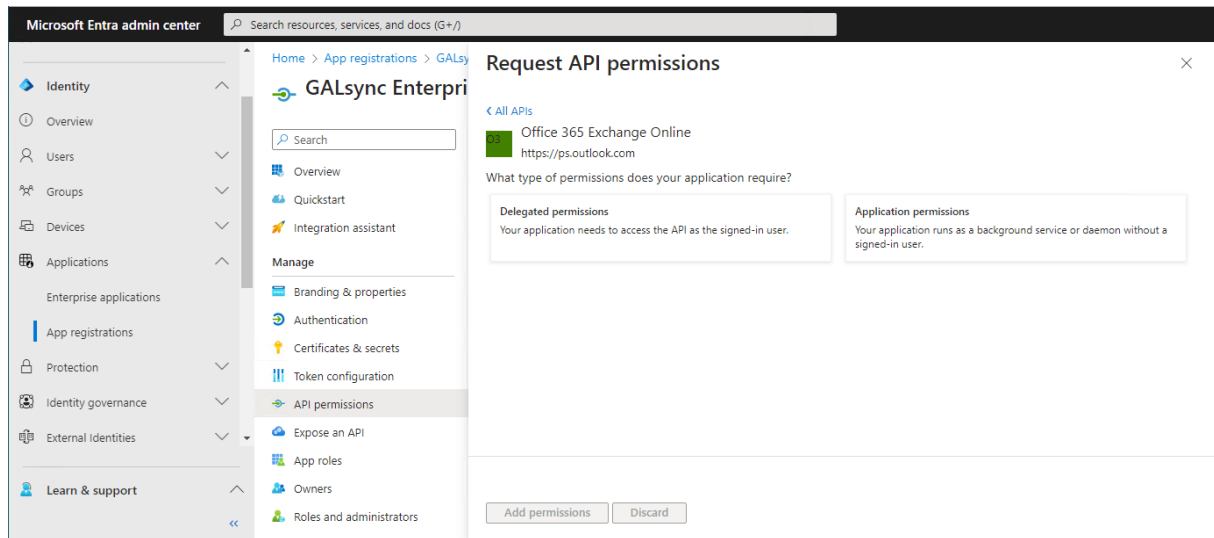


Select the **APIs my organization uses** tab on the **Request API permissions** dialog and search for **Office**.

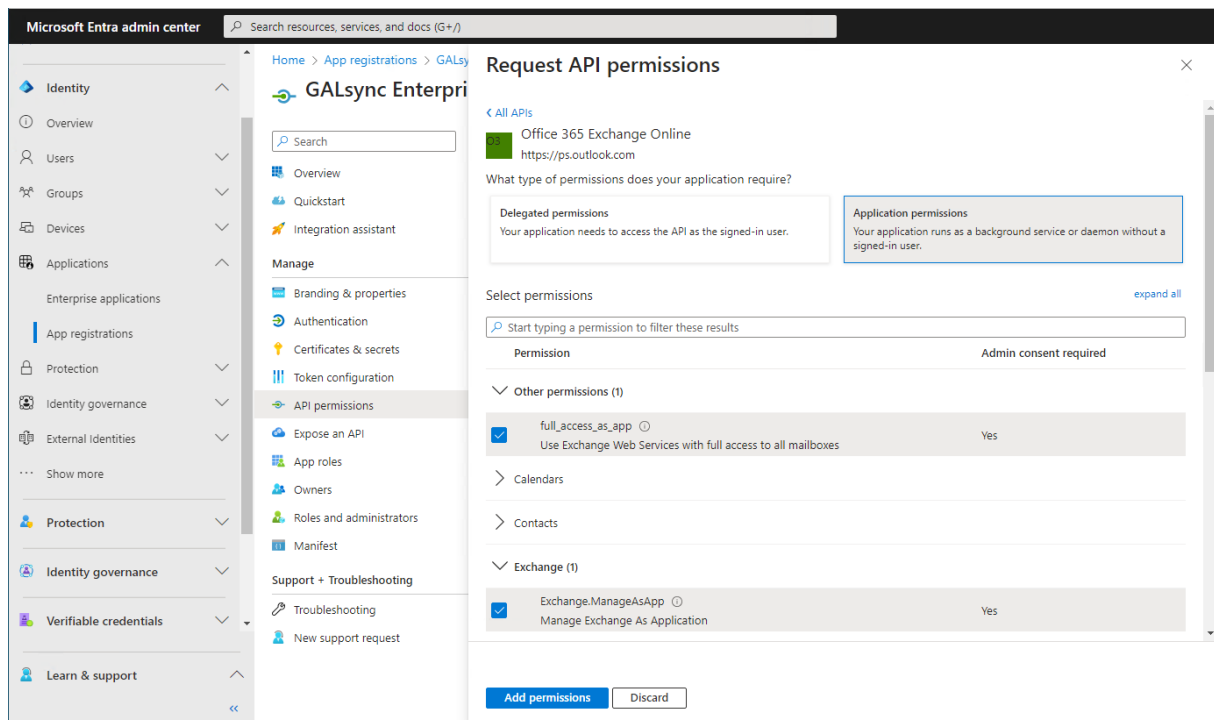


Click on **Office 365 Exchange Online** in the result list to open it.

## Select Application permissions



Select  
**full\_access\_as\_app**  
Use Exchange Web Services with full access to all mailboxes  
and  
**Exchange.ManageAsApp**  
Manage Exchange As Application



Click **Add permissions**

Click **Grant admin consent** for your tenant.

The screenshot shows the Microsoft Entra admin center interface. On the left is a navigation pane with categories like Identity, Protection, and Learn & support. The main area is titled 'GALsync Enterprise App | API permissions'. It includes a search bar, a refresh button, and a 'Got feedback?' link. A warning message states: 'You are editing permission(s) to your application, users will have to consent even if they've already done so previously.' Below this, a blue information box explains the 'Admin consent required' column. The 'Configured permissions' section lists permissions for 'Office 365 Exchange' and 'Exchange.Manage'. A green box highlights the 'Grant admin consent for NETSec Demo' button. At the bottom, there's a link to 'Enterprise applications' for more details.

Click **Yes** to confirm the consent.

This screenshot shows the same Microsoft Entra admin center interface as the previous one, but with a 'Grant admin consent confirmation' dialog box open. The dialog asks: 'Do you want to grant consent for the requested permissions for all accounts in NETSec Demo? This will update any existing admin consent records this application already has to match what is listed below.' It features 'Yes' and 'No' buttons. The background page shows the 'Grant admin consent for NETSec Demo' button is now checked. The 'Configured permissions' table remains the same, and the 'Enterprise applications' link is still present at the bottom.

API permissions are assigned to the registered Application.

Microsoft Entra admin center

Search resources, services, and docs (G+)

Identity

Overview

Users

Groups

Devices

Applications

Enterprise applications

App registrations

Protection

Identity governance

External Identities

Show more

Protection

Learn & support

Manage

Branding & properties

Authentication

Certificates & secrets

Token configuration

API permissions

Expose an API

App roles

Owners

Roles and administrators

Manifest

Support + Troubleshooting

Troubleshooting

New support request

Home > App registrations > GALsync Enterprise App

GALsync Enterprise App | API permissions

Grant consent  
Grant consent successful

Search

Refresh

Got feedback?

Successfully granted admin consent for the requested permissions.

The "Admin consent required" column shows the default value for an organization. However, user consent can be customized per permission, user, or app. This column may not reflect the value in your organization, or in organizations where this app will be used. [Learn more](#)

Configured permissions

Applications are authorized to call APIs when they are granted permissions by users/admins as part of the consent process. The list of configured permissions should include all the permissions the application needs. [Learn more about permissions and consent](#)

+ Add a permission

Grant admin consent for NETsec Demo

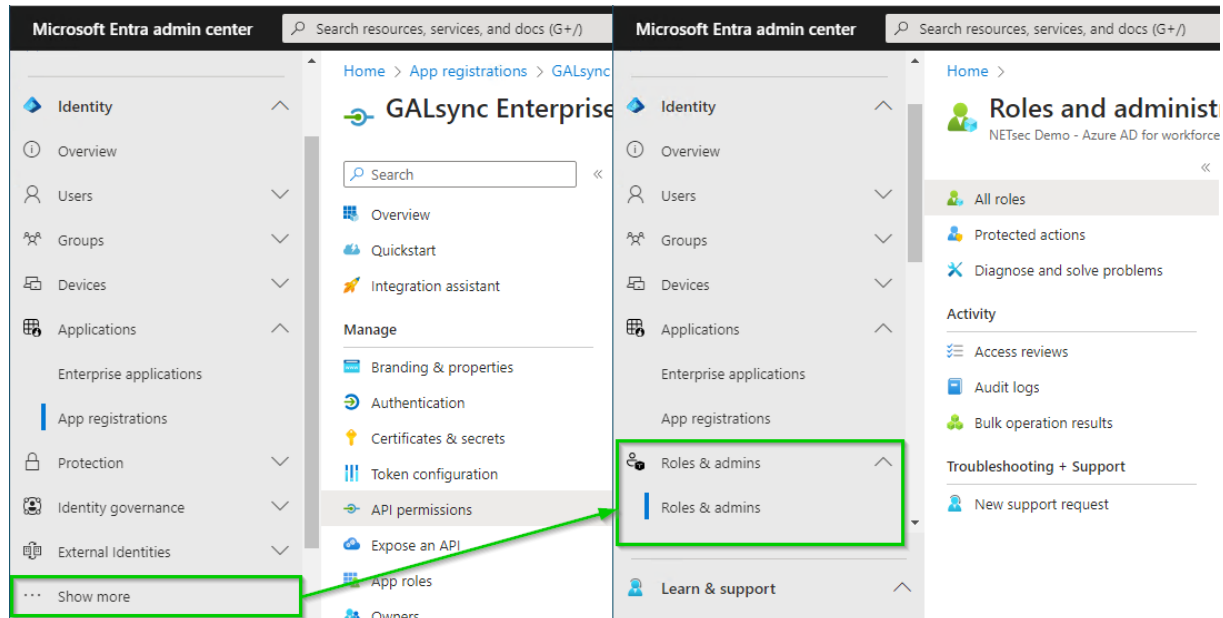
API / Permissions n...	Type	Description	Admin consent req...	Status
Office 365 Exchange				
Exchange.Manage	Application	Manage Exchange As Application	Yes	Granted for NETsec Demo
full_access_as_app	Application	Use Exchange Web Services with fu...	Yes	Granted for NETsec Demo

To view and manage consented permissions for individual apps, as well as your tenant's consent settings, try [Enterprise applications](#).

## Exchange Administrator role for the registered Application

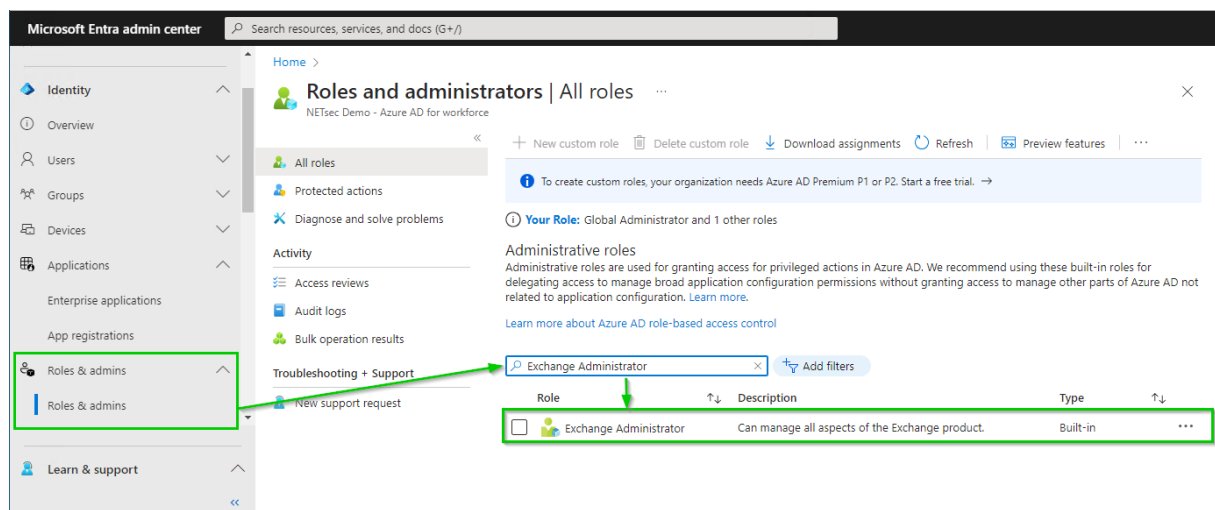
The **Exchange Administrator** role for **Exchange Online** is necessary because GALsync communicates via the **Exchange Online PowerShell** with the Microsoft 365 tenant.

The application requires **Exchange Administrator** role in the Microsoft 365 tenant, otherwise GALsync will not have access to the complete set of Exchange Online PowerShell cmdlets which are needed to function properly.

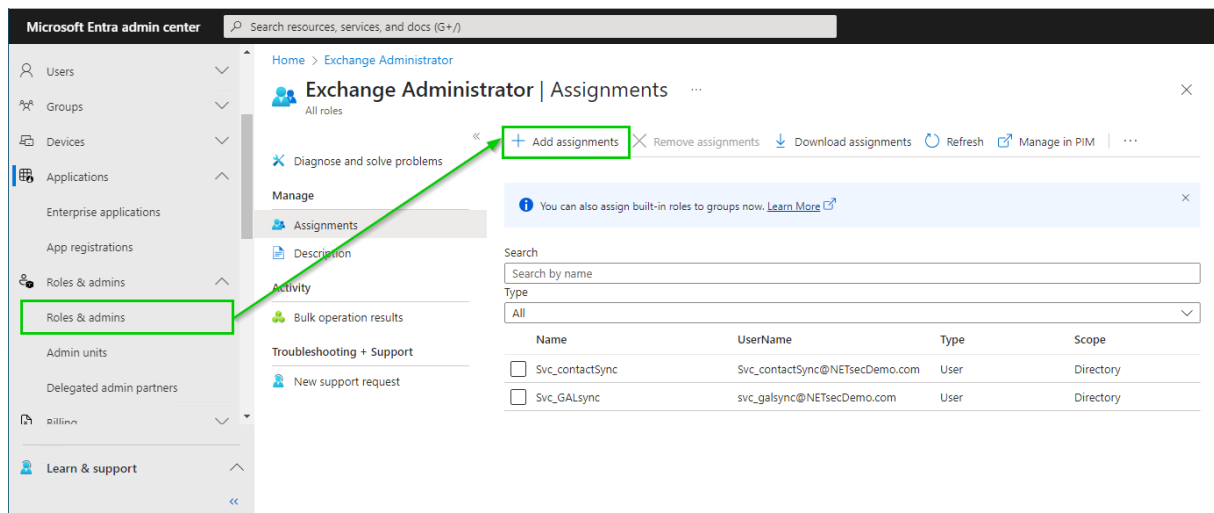


Expand **Roles & admins**. If you do not see **Roles & admins** in the **Identity** menu, click **Show more ...**.

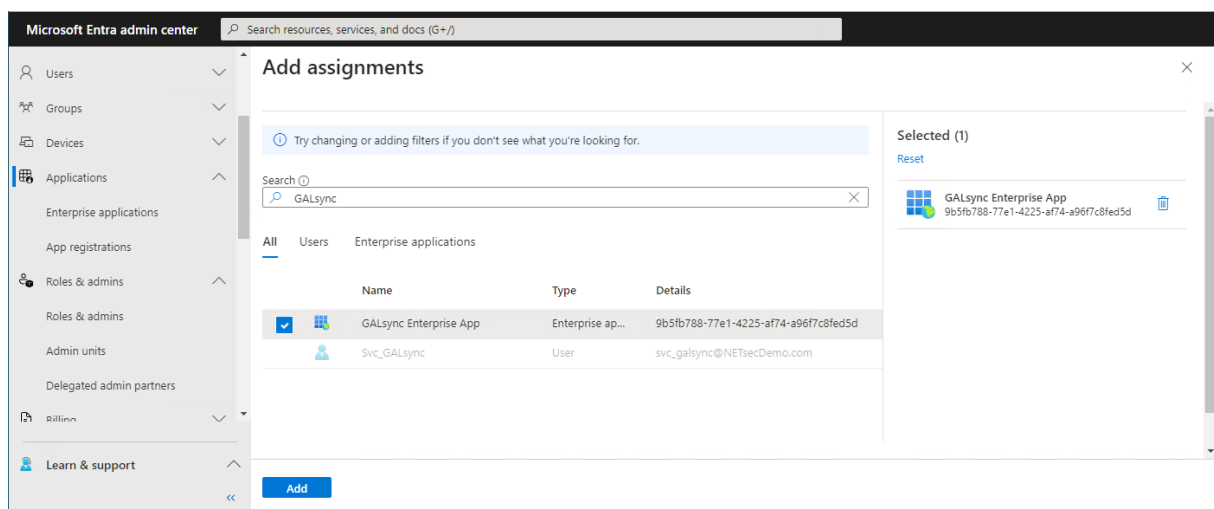
Go to **Roles & admins** in the expanded **Roles & admins** menu and search for **Exchange Administrator**.



Click on the **Exchange administrator** in the result list to open the **Exchange administrator role**.

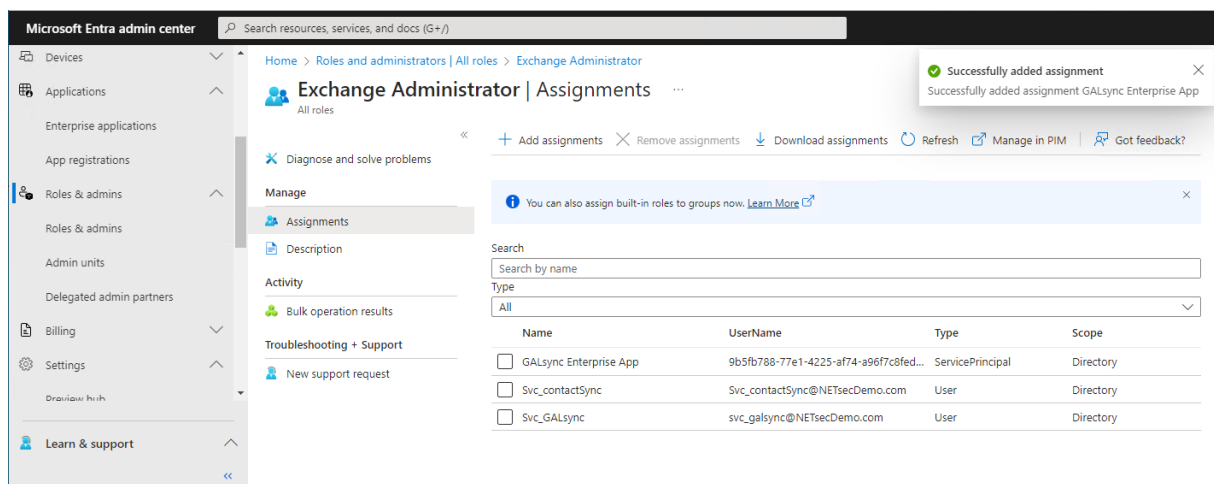


Click **Add assignments**, then search for the newly registered application.



Select the newly registered application and click **Add**.

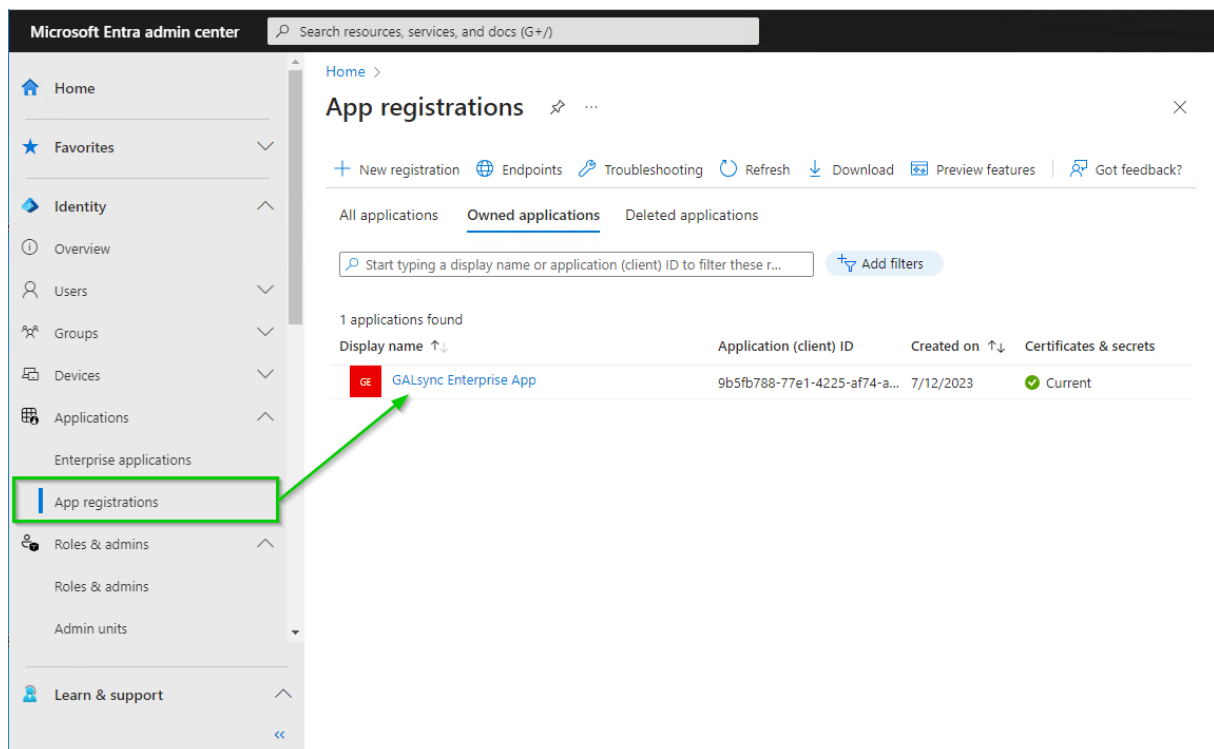
The application has been assigned the **Exchange Administrator Role**.



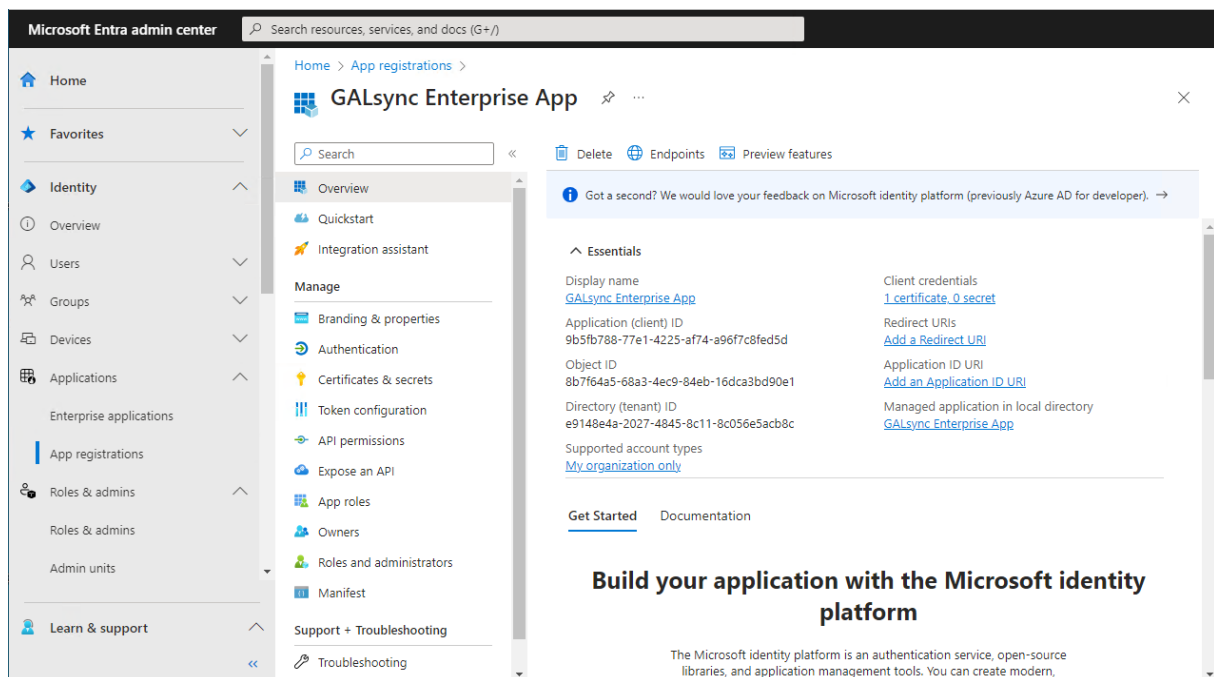


## Overview of the registered Application in App registrations

Go to **Identity** in the **Microsoft Entra admin center** menu, expand **Applications** and select **App registrations**.



Select the registered Application to see the overview.



Please check whether the values of the registered Application are corresponding with the values in the **Exchange Online App Registration** dialog.

**GALsync Enterprise App**

[Delete](#)
[Endpoints](#)
[Preview features](#)

Got a second? We would love your feedback on Microsoft identity platform (previously Azure AD for

Essentials

Display name  
[GALsync Enterprise App](#)

Application (client) ID  
9b5fb788-77e1-4225-af74-a96f7c8fed5d

Object ID  
8b7f64a5-68a3-4ec9-84eb-16dca3bd90e1

Directory (tenant) ID  
e9148e4a-2027-4845-8c11-8c056e5acb8c

Supported account types  
[My organization only](#)

Client credentials  
[1 certificate\\_0 secret](#)

Redirect URIs  
[Add a Redirect URI](#)

Application ID URI  
[Add an Application ID URI](#)

Managed application in local directory  
[GALsync Enterprise App](#)

Get Started Documentation

## Build your application with the Microsoft identity platform

The Microsoft identity platform is an authentication service, open-source libraries, and application management tools. You can create modern,

Exchange Online App Registration

Corresponding settings for the Enterprise Application in the Microsoft Entra ID (formerly Azure AD) App registrations that enables access to Exchange Online.

Organization / Tenant  
netsecdemotenant.onmicrosoft.com

Application Display Name  
GALsync Enterprise App

Application ID  
9b5fb788-77e1-4225-af74-a96f7c8fed5d

Certificate

Friendly Name	NETsecDemo from GALsync Server
Not After	2025-07-20
Subject	CN=NETsecDemoFromGALsyncServer
Thumbprint	BDB65782A2035F6C046E2DFFC1A55878B1433AB2
Has PrivateKey	True
User	NETSECDEMO\svc_galsync

Choose Certificate Create Certificate

Maximum Connection 2 ☒ Set as primary account

Email Address

Apply Cancel

**Organization / Tenant** needs the **.onmicrosoft.com** domain name of the Microsoft 365 tenant. Otherwise, you might encounter cryptic permission issues when you run a policy in the app context.

**Application Display Name** must have the value of the **Display name** of the registered Application.

**Application ID** must have the value of the **Application (Client) ID** of the registered Application.

A **Certificate** is created and selected from **Current User Personal Certificates store**

certmgr - [Certificates - Current User\Personal\Certificates]

File Action View Help

Certificates - Current User

Personal

Certificates

Trusted Root Certification Authorities

Enterprise Trust

Intermediate Certification Authorities

Active Directory User Objects

Trusted Publishers

Untrusted Certificates

Third-Party Root Certifications

Trusted People

Client Authentication Issuers

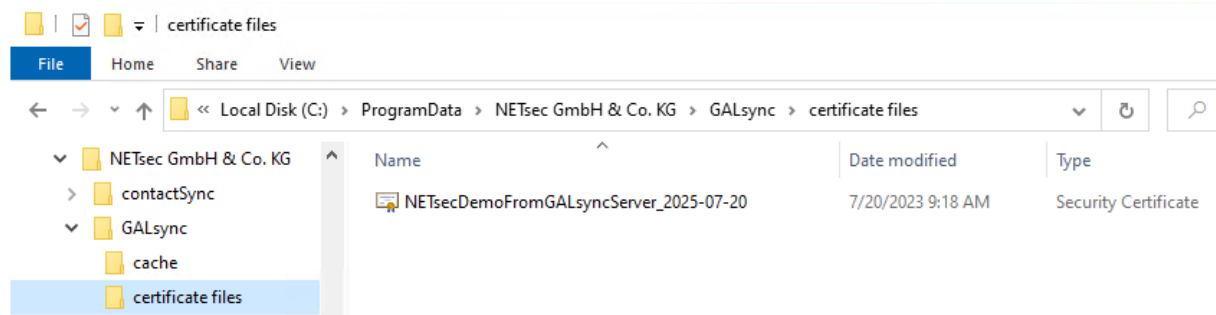
Other People

Certificate Enrollment Request

Smart Card Trusted Roots

Issued To	Issued By	Expiration Date
NETsecDemoFromGALsyncServer	NETsecDemoFromGALsyncServer	7/20/2025

and the corresponding certificate file is attached to the **Entra ID application**.



The 'Exchange Online App Registration' dialog box is shown. It includes the following fields and sections:

- Organization / Tenant:** netsecdemotenant.onmicrosoft.com
- Application Display Name:** GALsync Enterprise App
- Application ID:** 9b5fb788-77e1-4225-af74-a96f7c8fed5d
- Certificate Section:**
  - Friendly Name: NETsecDemo from GALsync Server
  - Not After: 2025-07-20
  - Subject: CN=NETsecDemoFromGALsyncServer
  - Thumbprint: BDB65782A2035F6C046E2DFFC1A55878B1433AB2
  - Has PrivateKey: True
  - User: NETSECDEMO\svc\_galsync
- Buttons:** Choose Certificate, Create Certificate, Apply, Cancel
- Maximum Connection:** 2 (with a dropdown arrow)
- Set as primary account:** ☒
- Email Address:** svc\_galsync@netsecdemo.com

To complete the **Exchange Online App Registration** dialog, insert an **Email Address** of an Exchange Online mailbox.

**Email Address** of an Exchange Online mailbox is necessary to send and receive email. We recommend to use a dedicated Exchange Online mailbox for this purpose.

Click **Apply** to finish and close the **Exchange Online App Registration** dialog.

### Limit the scope of application permissions to access mailboxes

The registered application (App registrations) for GALsync only needs access to the Exchange Online mailbox, which GALsync uses to send and receive email, if only GALsync policies should be configured.

*Please note, if contactSync policies should be configured, the application needs access to all the Exchange mailboxes, which should receive the contacts.*

Please take a look at following chapters in the GALsync manual:

**How to check existing application access policy for the application**

**How to restrict access to specific mailboxes for the application**

<https://www.netsec.de/en/products/galsync/documentation.html>

## Test the Exchange Online PowerShell connection and the Exchange mailbox

The screenshot shows the 'Environment Configuration' dialog box with the 'Exchange Online' tab selected. The dialog has a title bar with standard window controls. Below the title bar are tabs for 'General', 'Exchange Scenario', 'Exchange Server on-premises', and 'Exchange Online'. The 'Exchange Online' tab is active and contains the following sections:

- Exchange Online**: A header section with instructions: 'Manage the settings for the Exchange Online tenant. All accounts of the Microsoft 365 tenant have Exchange Administrator role permission for Exchange Online.'
- Credentials**: A section with a toolbar containing 'Add', 'Add', 'Modify', and 'Remove' buttons. Below is a table with two columns: 'Username' and 'Max. Connection'. The table contains one entry: 'GALsync Enterprise App' with a value of '2'.
- Organization Settings**: A section with two rows of settings: 'Instance hosted by' (Microsoft 365 or Microsoft 365 GCC, Microsoft Azure public cloud) and 'Exchange Web Services URL' (https://outlook.office365.com/EWS/Exchange.asmx).
- Remote PowerShell Connection Test**: A section with a 'Test' button, a 'Show log' button, and a text area for the test result.
- Exchange Mailbox Test**: A section with a 'Send a test email to the recipient:' label, an 'Email address' input field, and a 'Send test email' button.

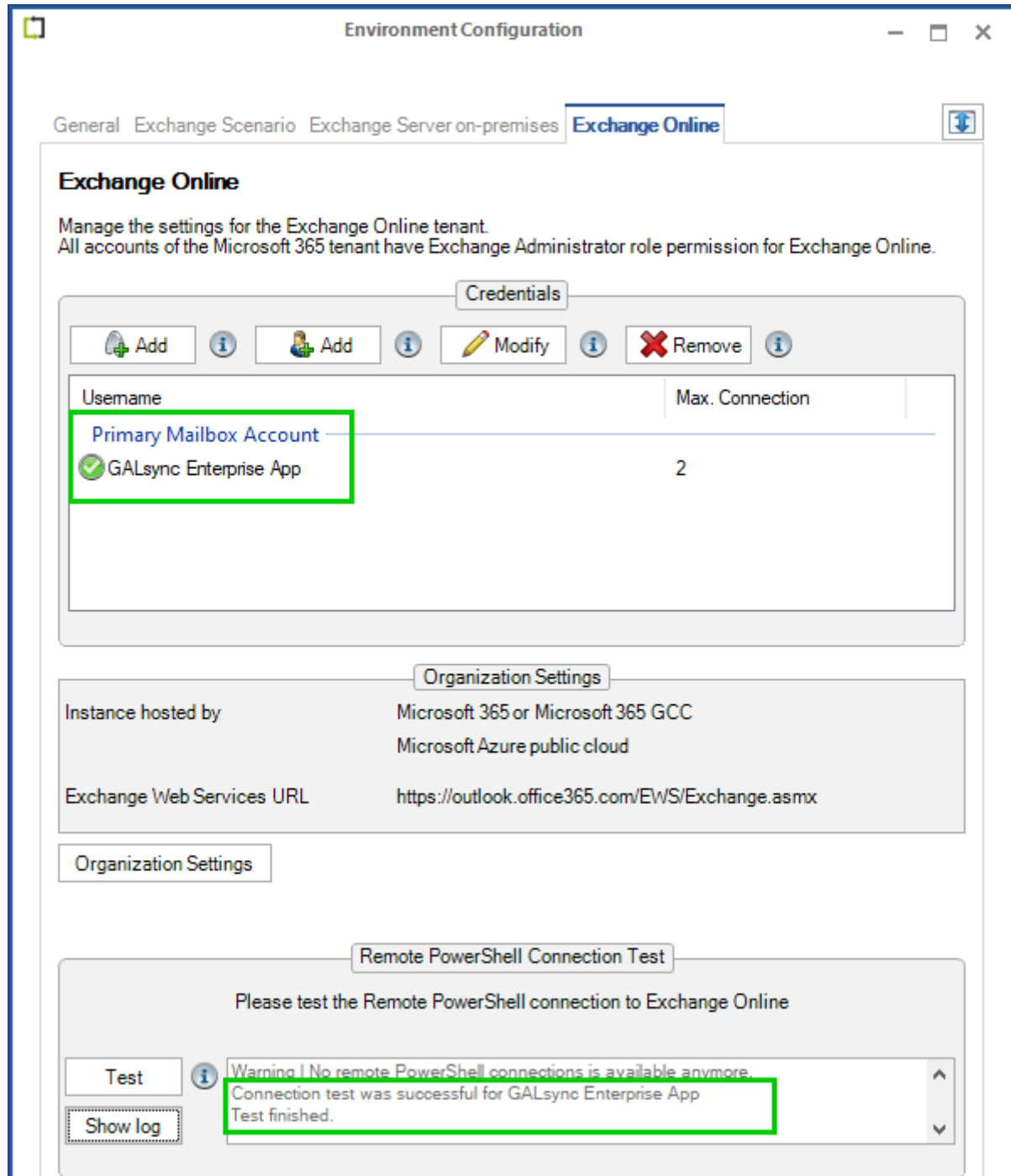
At the bottom of the dialog are three buttons: 'Ok', 'Cancel', and 'Apply'.

Username	Max. Connection
GALsync Enterprise App	2

Click the **Test** button for the **Remote PowerShell Connection Test**, to test connectivity to Exchange Online PowerShell.

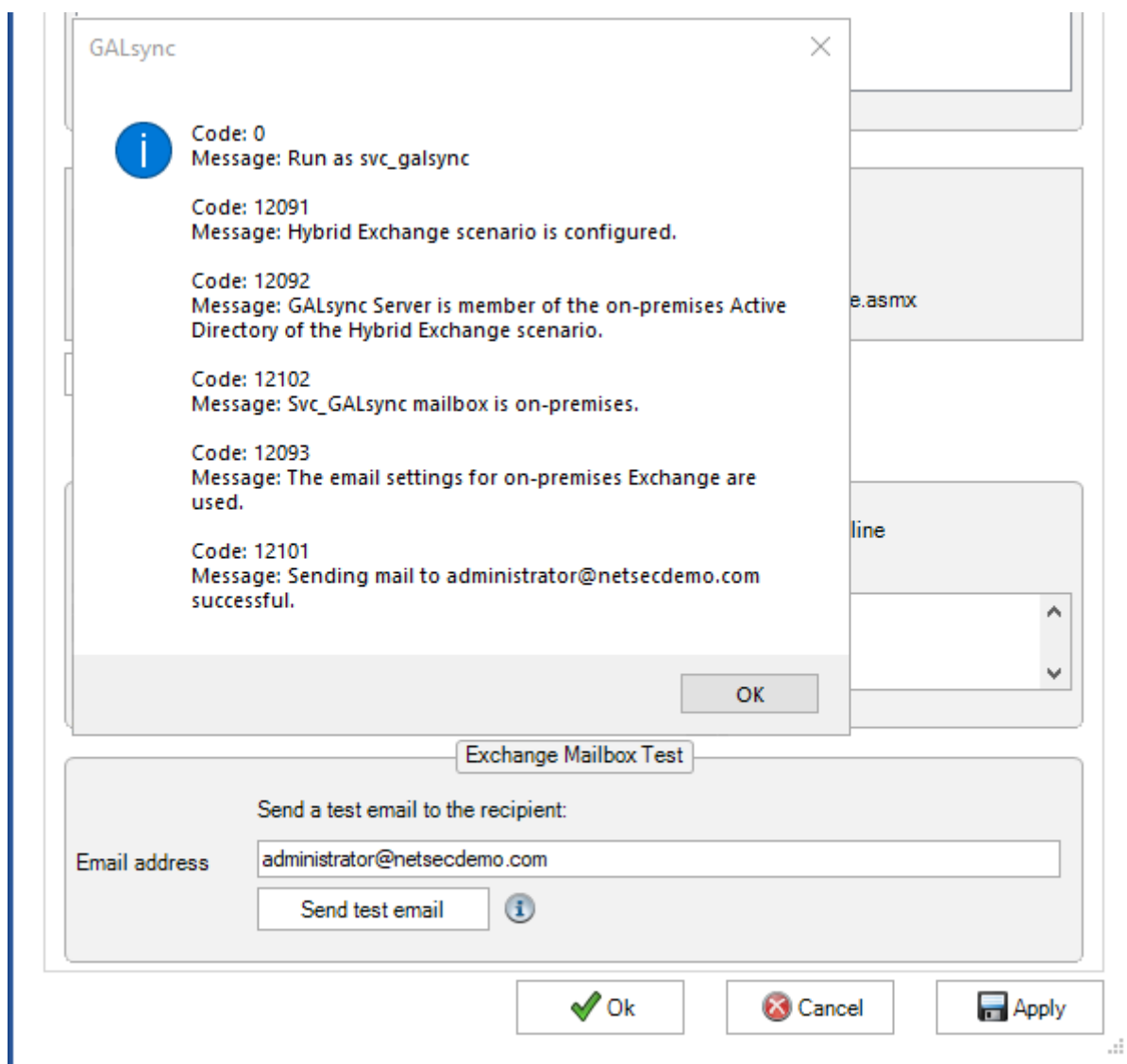
Please wait for the test to finish before proceeding.

Upon a successful connection, a green circle with a checkmark will be displayed.



If the connection test failed, click the **Show log** button for detailed information.

A test email can also be sent to the desired recipient as an additional test to validate mail flow. To do this, click the **Send test email** button for the **Exchange Mailbox Test**.



*Please note, that the e-mail address of the recipient for the test email will not be saved.*

## Exchange Online authentication via Service Account

Please note, that user-based authentication via OAuth 2.0 works only for the Microsoft Azure Public Cloud instance. If your Microsoft 365 instance is hosted by a national cloud, please use **Exchange Online certificate-based authentication via App Registration**.

### Service Account (Microsoft 365 Exchange Online)

The GALsync service account needs to be a licensed Exchange Online mailbox user in the Microsoft 365 tenant.

*For example: Microsoft 365 Business Basic, Exchange Online (Plan 1) or Microsoft 365 E1 license will work for the service account.*

The service account must be a member of the **Exchange Administrator** role. GALsync uses the Exchange Online PowerShell commands, which are incomplete if the service account is not an Exchange Administrator for Exchange Online.

*Note: By default, the Exchange Online password has to be changed within 30 days. To ensure, that GALsync works properly, you have to configure user passwords to never expire. To configure your password please follow the steps described in the following article:*

<https://support.office.com/en-us/article/Set-a-user-s-password-expiration-policy-0f54736f-eb22-414c-8273-498a0918678f>

- GALsync must have direct access to the user mailbox of the service account via Exchange Web Services (EWS) of Exchange Online.
- Ensure that the mailbox is accessible (e.g., by Outlook Web Access).
- Ensure that the mailbox can send to and receive email from the other organization.
- Ensure that incoming email from the other organization does not get caught by your spam filter or firewall.

Please note, service accounts are non-human privileged accounts used by applications, automated services, and that execute other IT processes. Because these are machine accounts, they cannot be protected by **multi-factor authentication (MFA)**, since there is no way for it to interactively login.

We recommend disabling **multi-factor authentication (MFA)** for this account, and use conditional access policies to lock down this account, such as allowing login only from trusted public IP addresses.



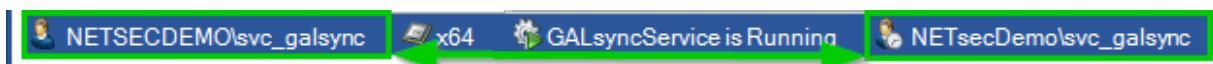
## Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) to access Exchange Online

The GALsync service account of a Microsoft 365 tenant needs access to its own mailbox, therefore, Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) must be configured.

Please note, that user-based authentication via OAuth 2.0 works only for the Microsoft Azure Public Cloud instance. If your Microsoft 365 instance is hosted by a national cloud, please use **Exchange Online certificate-based authentication via App Registration**.

First, please verify the GALsync GUI is running in the credentials of the local GALsync service account, otherwise GALsync cannot decrypt the token later.

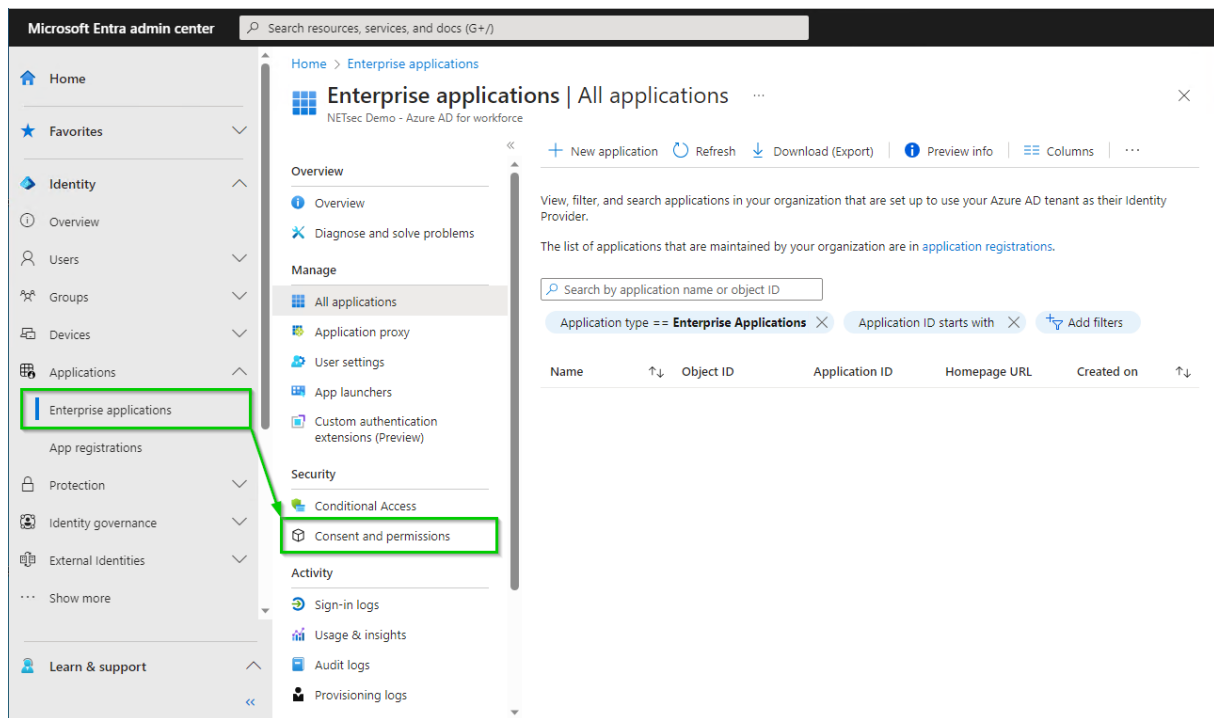
This can be confirmed on the information bar at the bottom of the GALsync GUI.



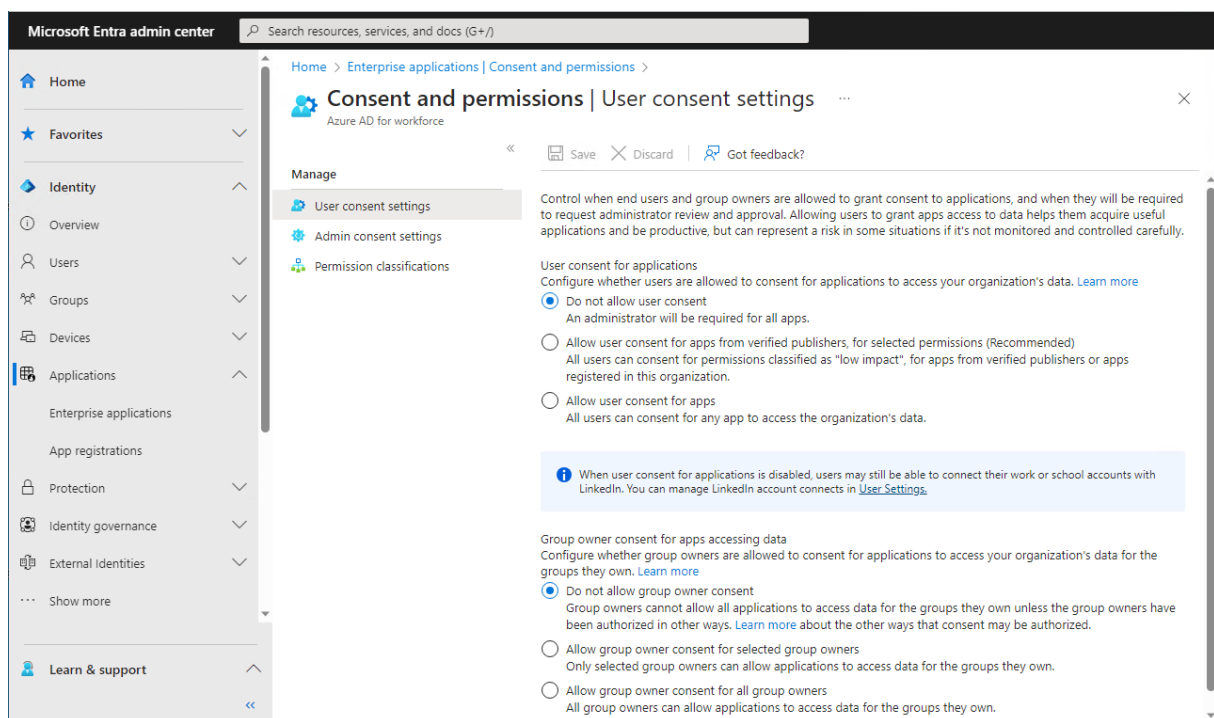
**Admin consent** requires in Entra ID Enterprise Applications (formerly Azure AD Enterprise Applications) to register NETsec GALsync as Enterprise Application.

*Please note, that GALsync cannot request the necessary **User consent** for a non admin user with restricted settings **Consent and permissions** for Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) of Exchange Online.*

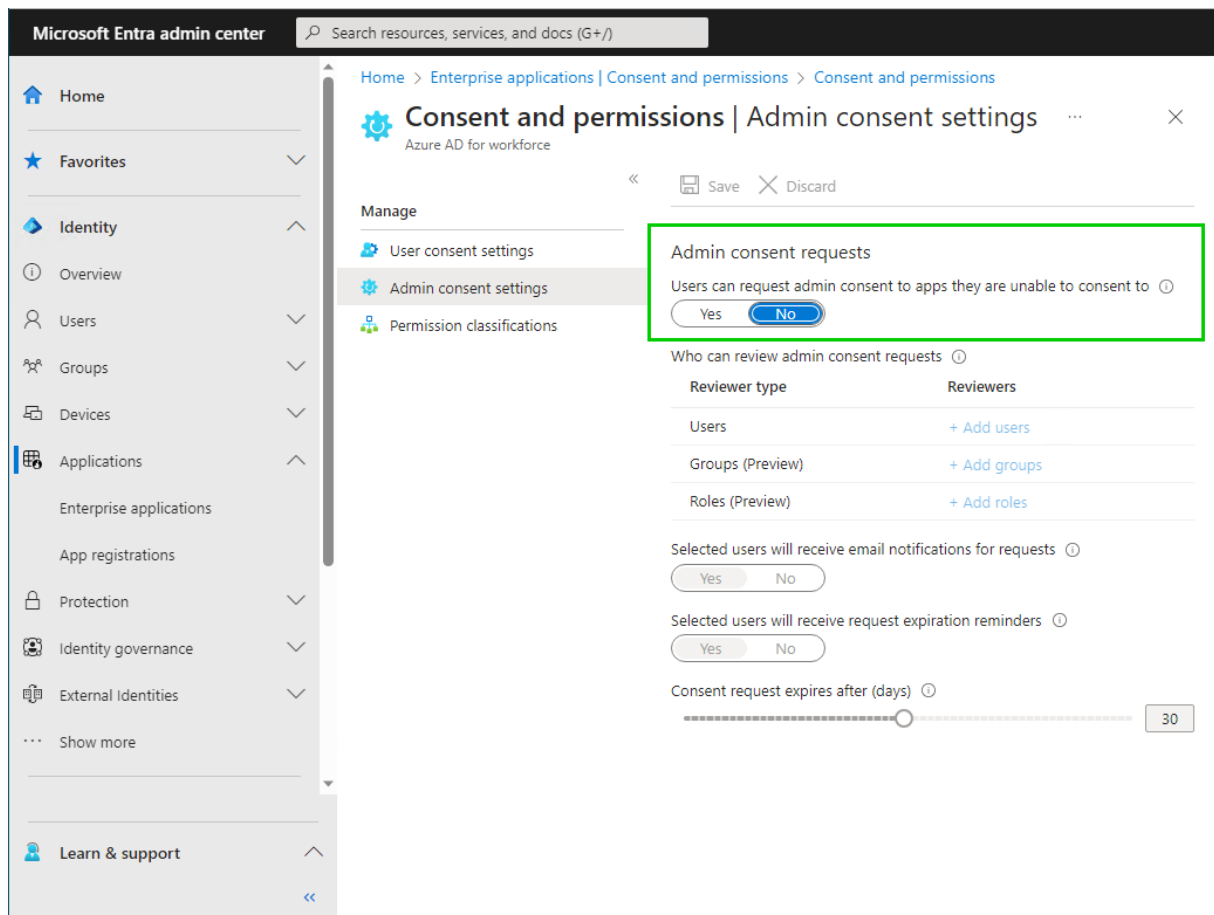
**How to check the Consent and permissions settings for Enterprise Applications?**  
**Microsoft Entra admin center -> Identity -> Applications -> Enterprise applications -> Consent and permissions**



The **Consent and permissions** settings of the **Enterprise applications** are restricted:



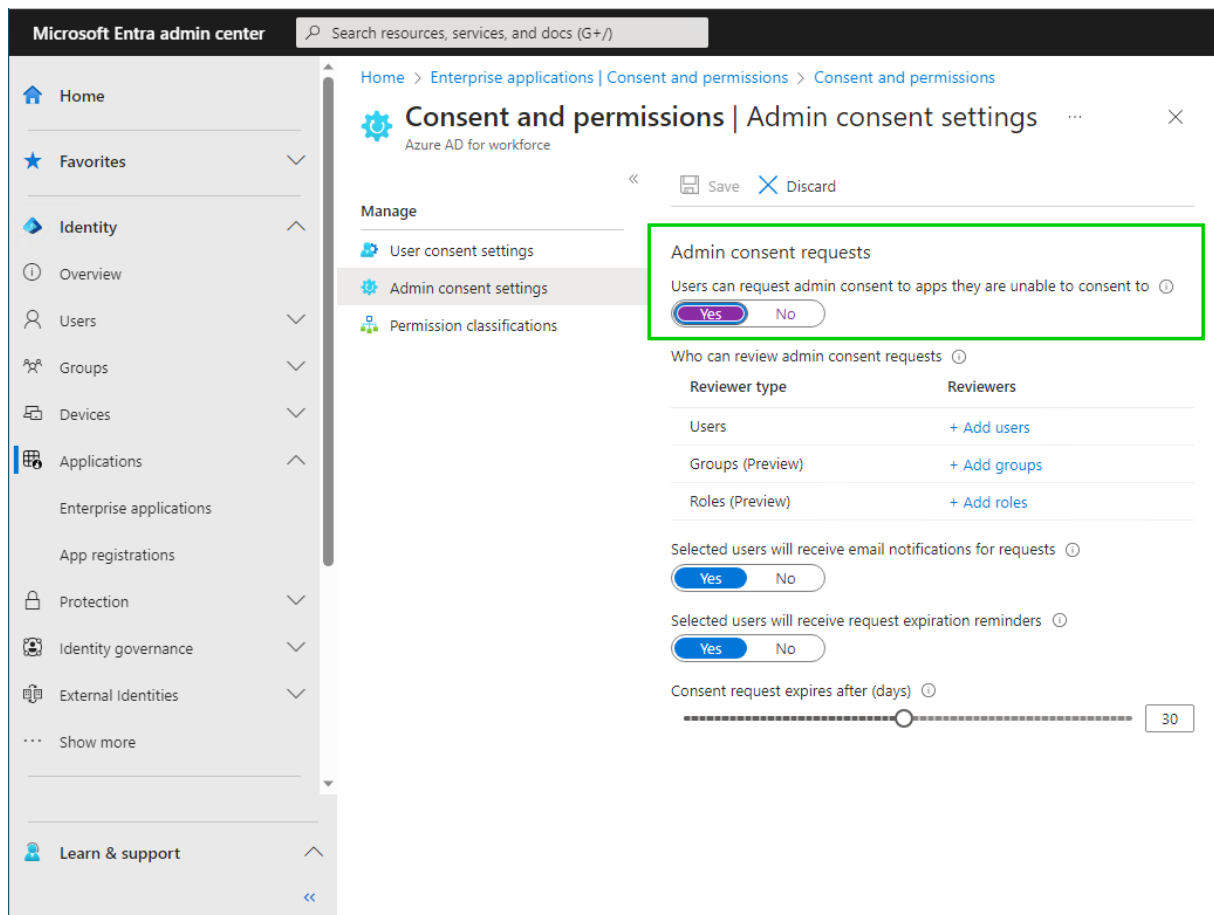
The **Consent and permissions** settings of the **Enterprise applications** are restricted and a Global Administrator account of the Microsoft 365 tenant must grant admin consent for the permissions of the Enterprise Application.



If the **Admin consent requests** in the **Admin consent settings** is **No**, the admin consent for the permissions of the Enterprise Application can be done with a sign in of a Global Administrator account during the first login process for Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) of Exchange Online. This process is described in the following chapter.

*Please note, the GALsync service account should only be an Exchange Administrator of Exchange Online, but **not** a Global Administrator of the Microsoft 365 tenant.*

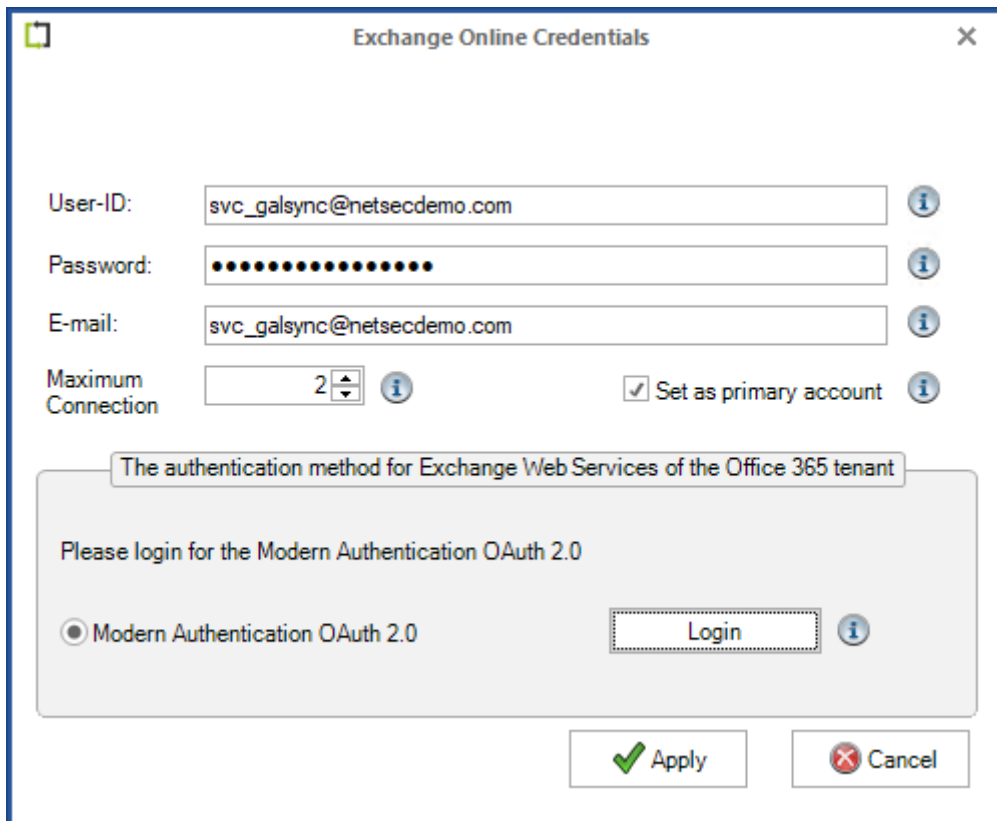
If the **Admin consent requests** in the **Admin consent settings** is **Yes**, the GALsync service account will send an admin consent request during the first login process for Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) of Exchange Online.



After that a user, who can review admin consent requests, must accept the request, before the GALsync service account does the login for Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) of Exchange Online a second time to get the token successfully.

## Login for Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) of Exchange Online

Proceed with the Login for Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) of Exchange Online with your GALsync Service Account.

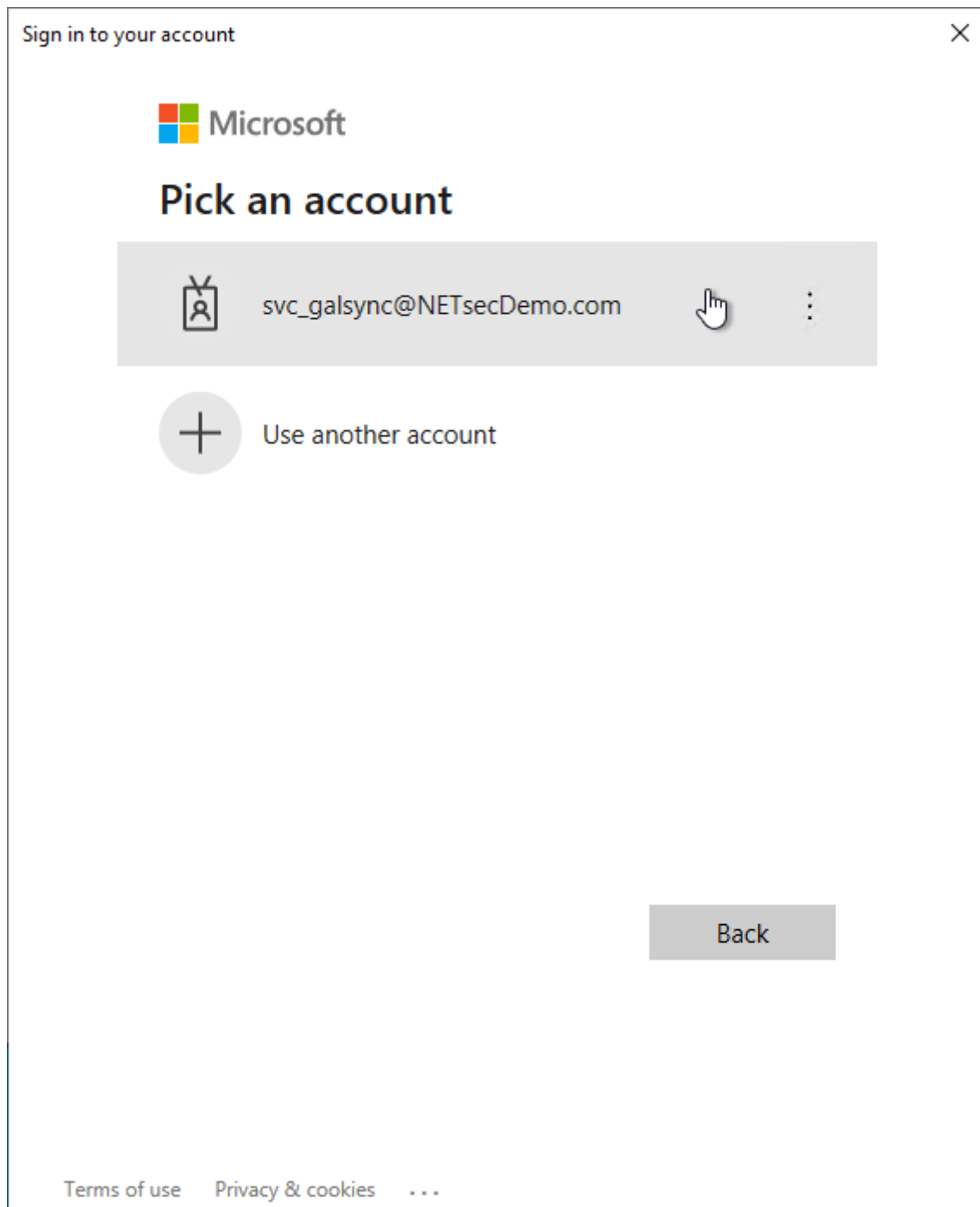


The dialog box is titled "Exchange Online Credentials" and contains the following fields and controls:

- User-ID:** A text box containing "svc\_galsync@netsecdemo.com" with an information icon to its right.
- Password:** A text box filled with dots, with an information icon to its right.
- E-mail:** A text box containing "svc\_galsync@netsecdemo.com" with an information icon to its right.
- Maximum Connection:** A spinner box set to "2" with an information icon to its right.
- Set as primary account:** A checked checkbox with an information icon to its right.
- Authentication Method:** A section titled "The authentication method for Exchange Web Services of the Office 365 tenant" containing:
  - A message: "Please login for the Modern Authentication OAuth 2.0"
  - A radio button selected for "Modern Authentication OAuth 2.0" with an information icon to its right.
  - A "Login" button with an information icon to its right.
- Buttons:** "Apply" (with a green checkmark icon) and "Cancel" (with a red X icon) buttons at the bottom right.


*Please note, that the User-ID and the E-mail address can be different for an Exchange Online mailbox user. This depends on your Microsoft 365 Exchange Online tenant.*

Insert the credentials for the GALsync service account, and click the **Login** button.



Select the same GALsync service account, which you have used in the **Exchange Online Credentials** dialog before.

Sign in to your account

 Microsoft

← svc\_galsync@netsecdemo.com

**Enter password**

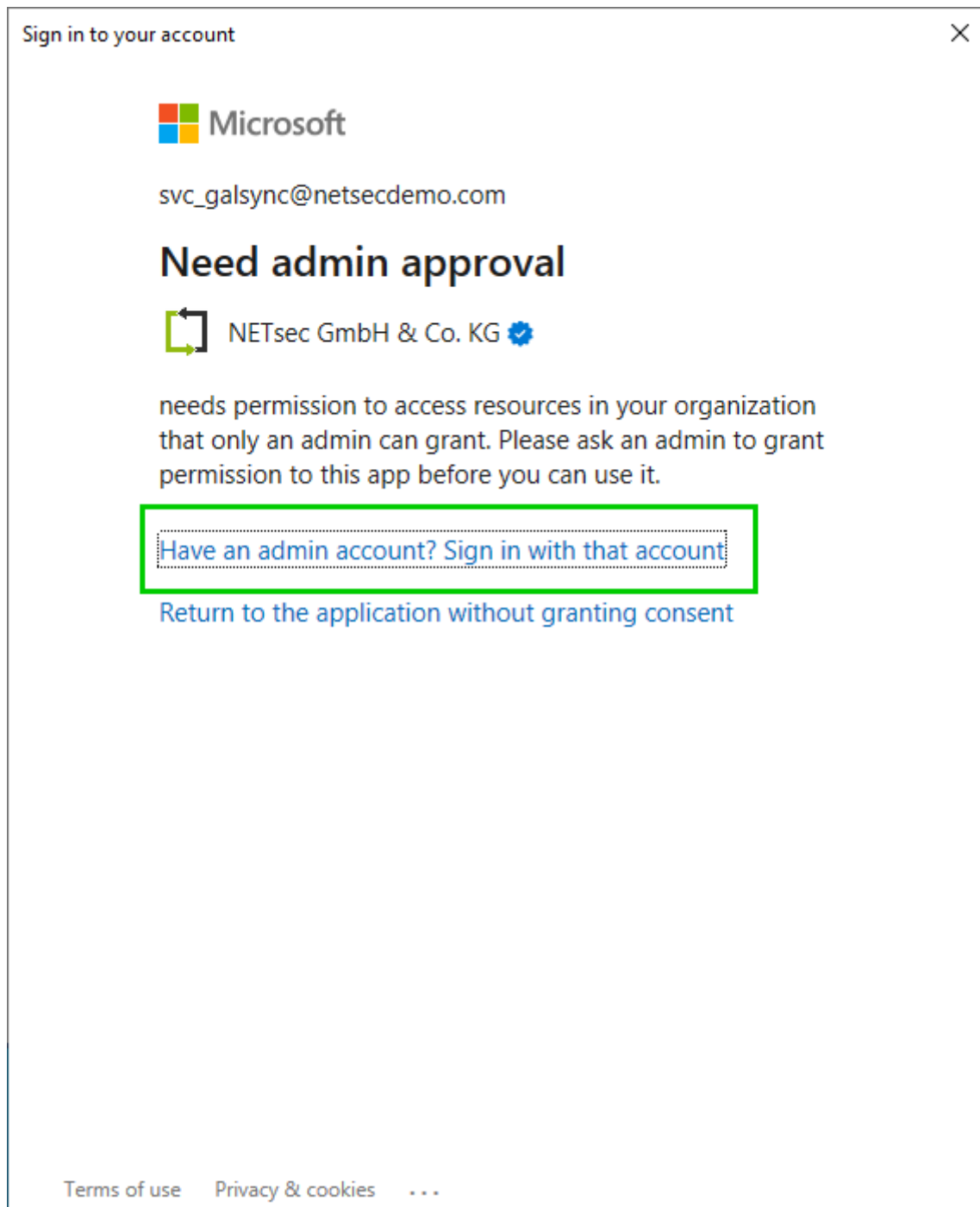
Password

[Forgot my password](#)

Sign in

[Terms of use](#) [Privacy & cookies](#) ...

Insert the password of the GALsync service account.

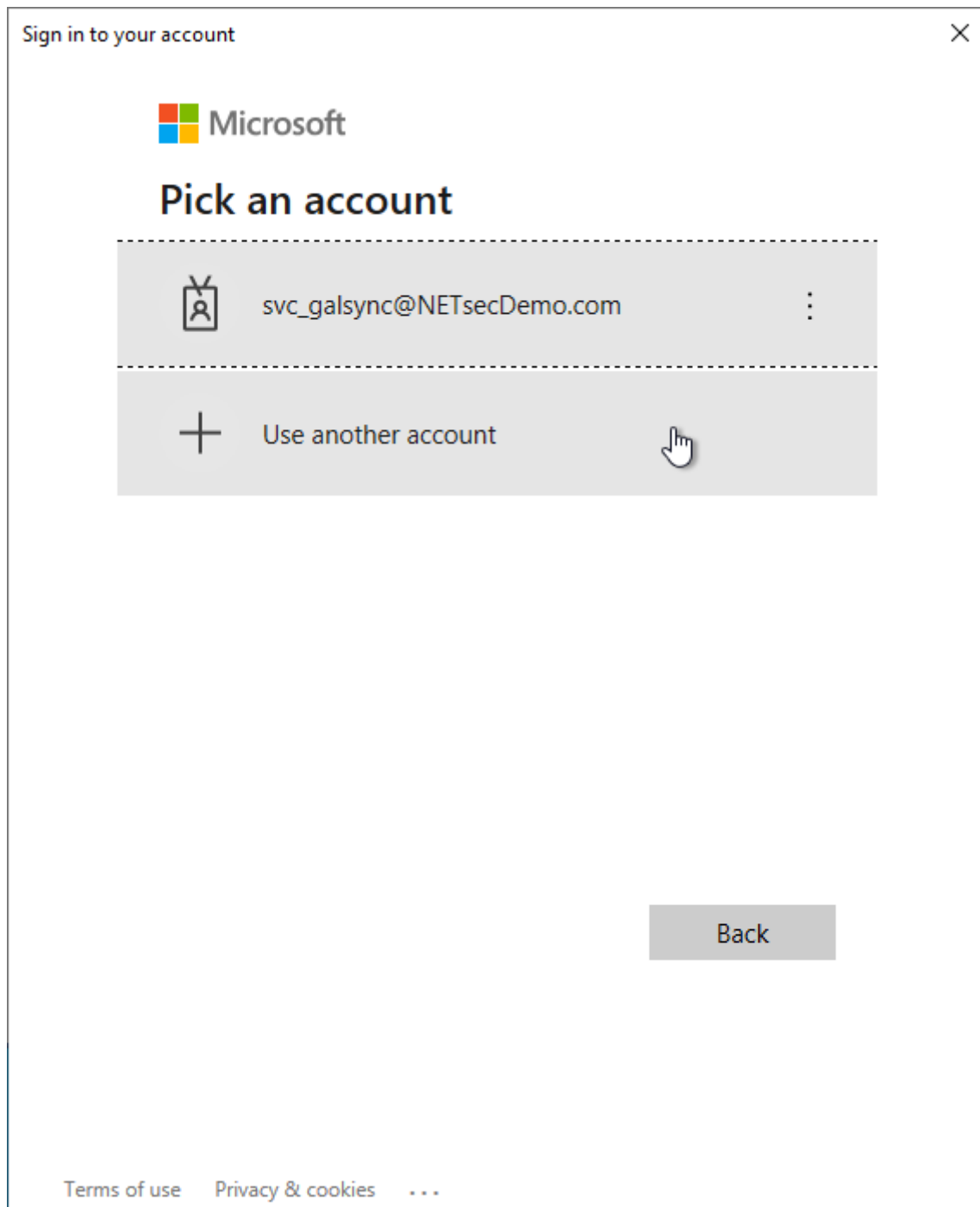


NETsec GALsync needs a sign in of a Global Administrator, who will accept the requested permissions for the Enterprise Application.

Click on **Have an admin account? Sign in with that account.**

Otherwise, a Global Administrator account grants consent for the requested permissions to the application under **Permissions** of the **NETsec GALsync Enterprise Application** in the **Microsoft Entra ID**, before the GALsync service account does the login for Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) of Exchange Online a second time to get the token successfully.






**Use another account** to sign in as a Global Administrator.

*Please note, the GALsync service account should only be an Exchange Administrator of Exchange Online, but **not** a Global Administrator of the Microsoft 365 tenant.*

Sign in to your account


 Microsoft

Sign in

administrator@netsecdemo.com

Can't access your account?


BackNext

 Sign-in options

[Terms of use](#) [Privacy & cookies](#) ...

Sign in with a **Global Administrator** account of the Microsoft 365 tenant.

Sign in to your account

 Microsoft

← administrator@netsecdemo.com

Enter password

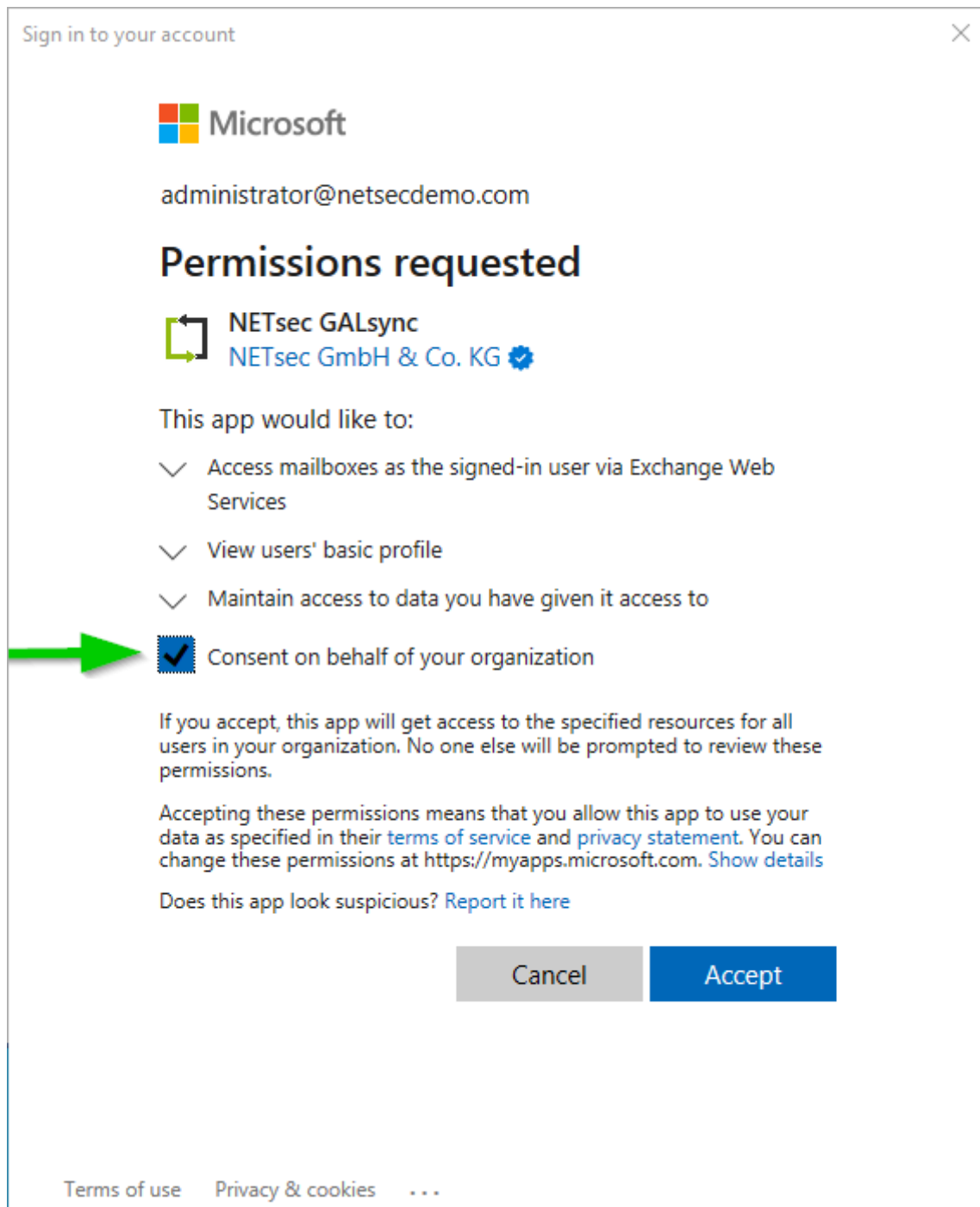
Password

[Forgot my password](#)

Sign in

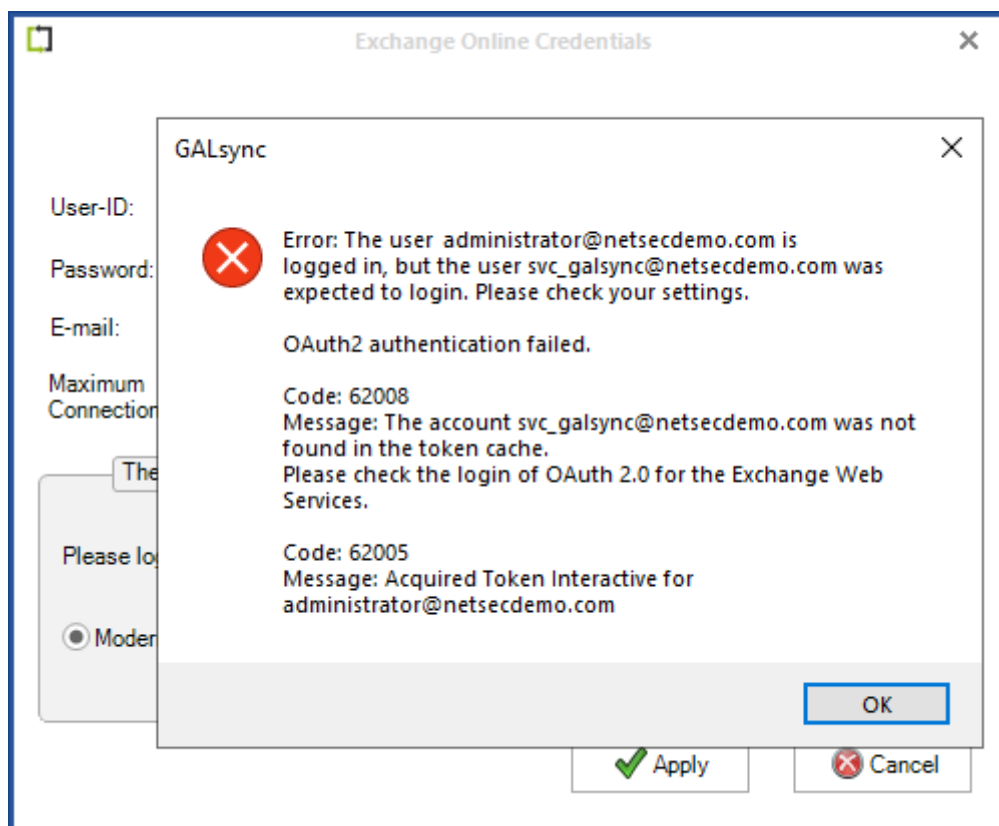
[Terms of use](#) [Privacy & cookies](#) ...

Insert the password of the **Global Administrator** account.

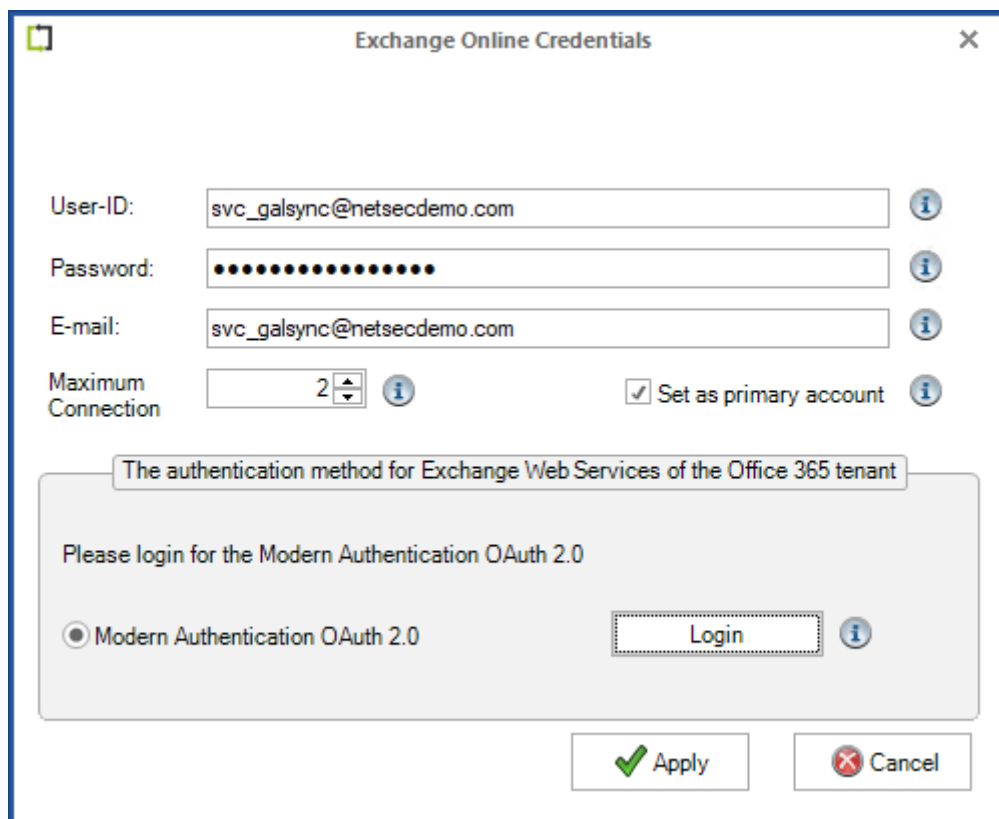


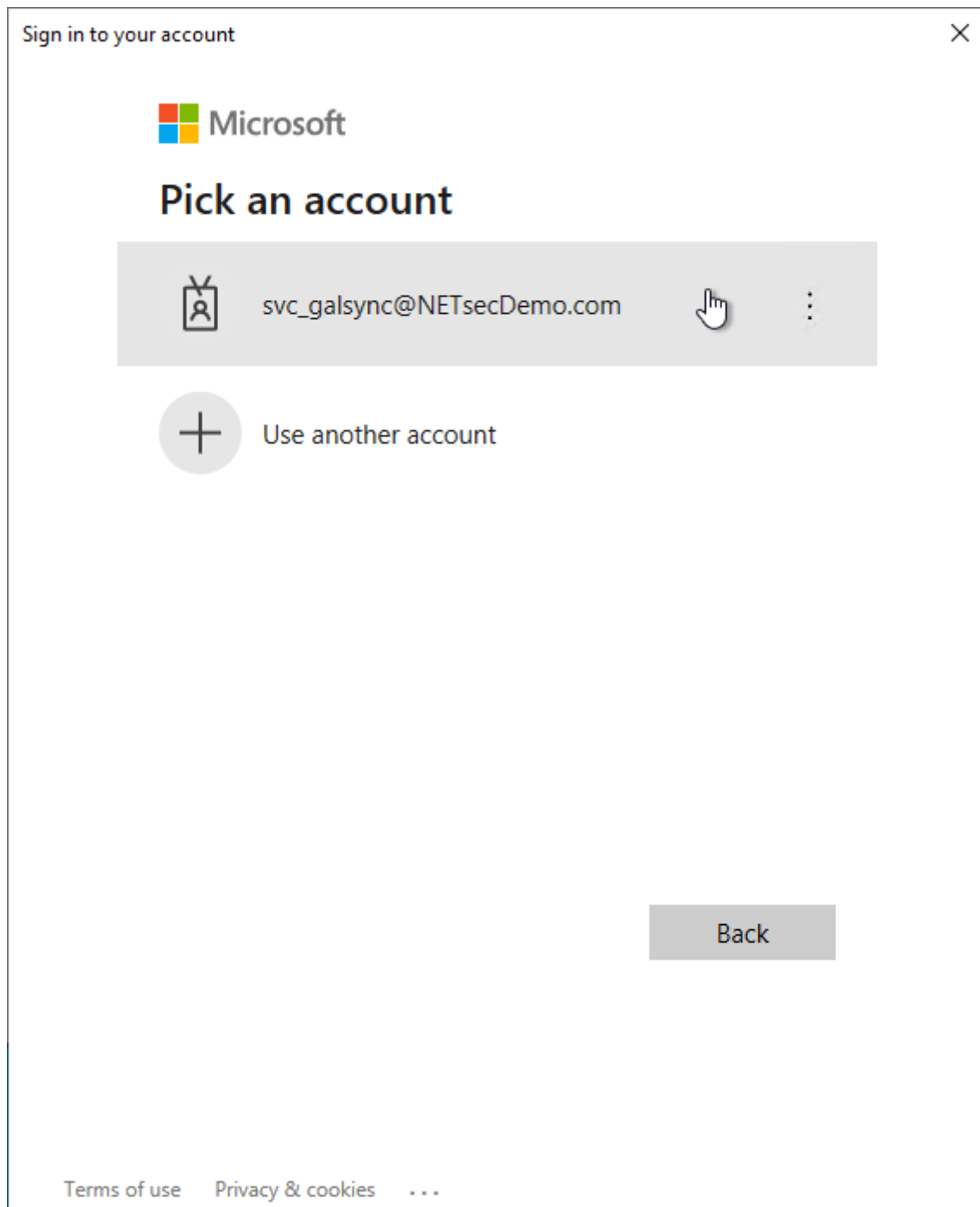
Enable **Consent on behalf of your organization**, then click **Accept**.

The OAuth2 authentication will fail after the first login process.




Proceed with the **Login** for Modern Authentication OAuth 2.0 for Exchange Web Services (EWS) of Exchange Online with your GALsync Service Account again.





Once again select the same GALsync service account, which has been previously used in the **Exchange Online Credentials** dialog.

Sign in to your account ✕

 **Microsoft**

← svc\_galsync@netsecdemo.com

**Enter password**

Password

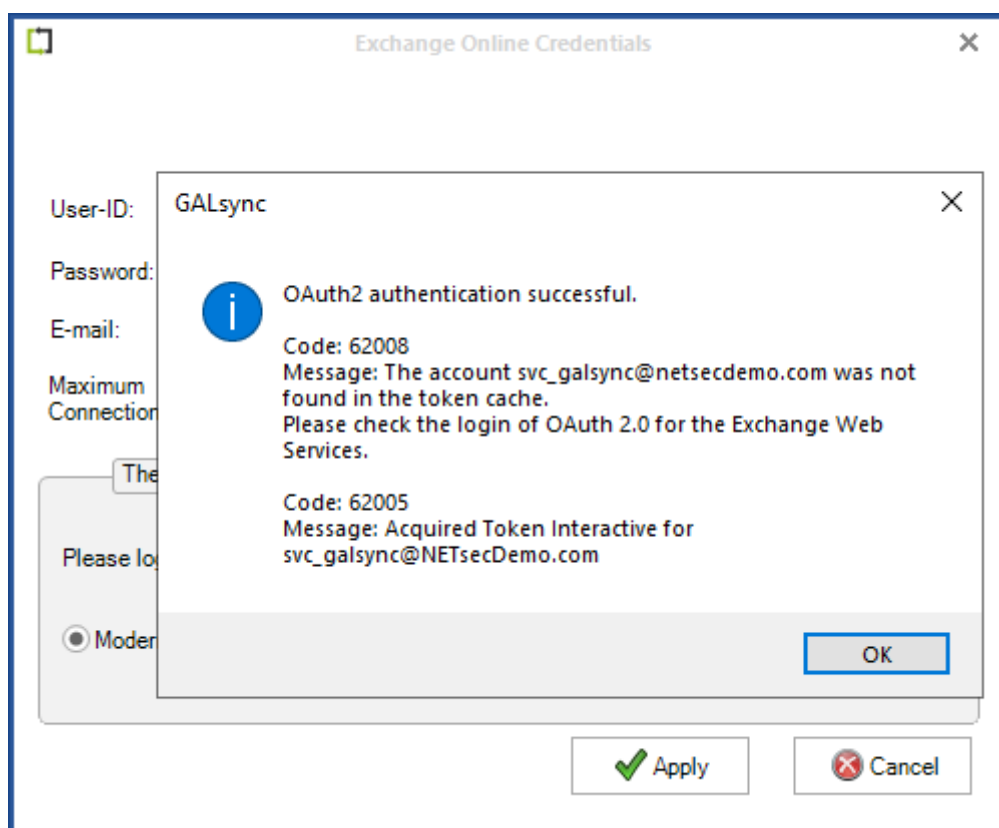
[Forgot my password](#)

[Sign in](#)

[Terms of use](#) [Privacy & cookies](#) ...

Insert the password of the GALsync service account.

The login will now be successful.

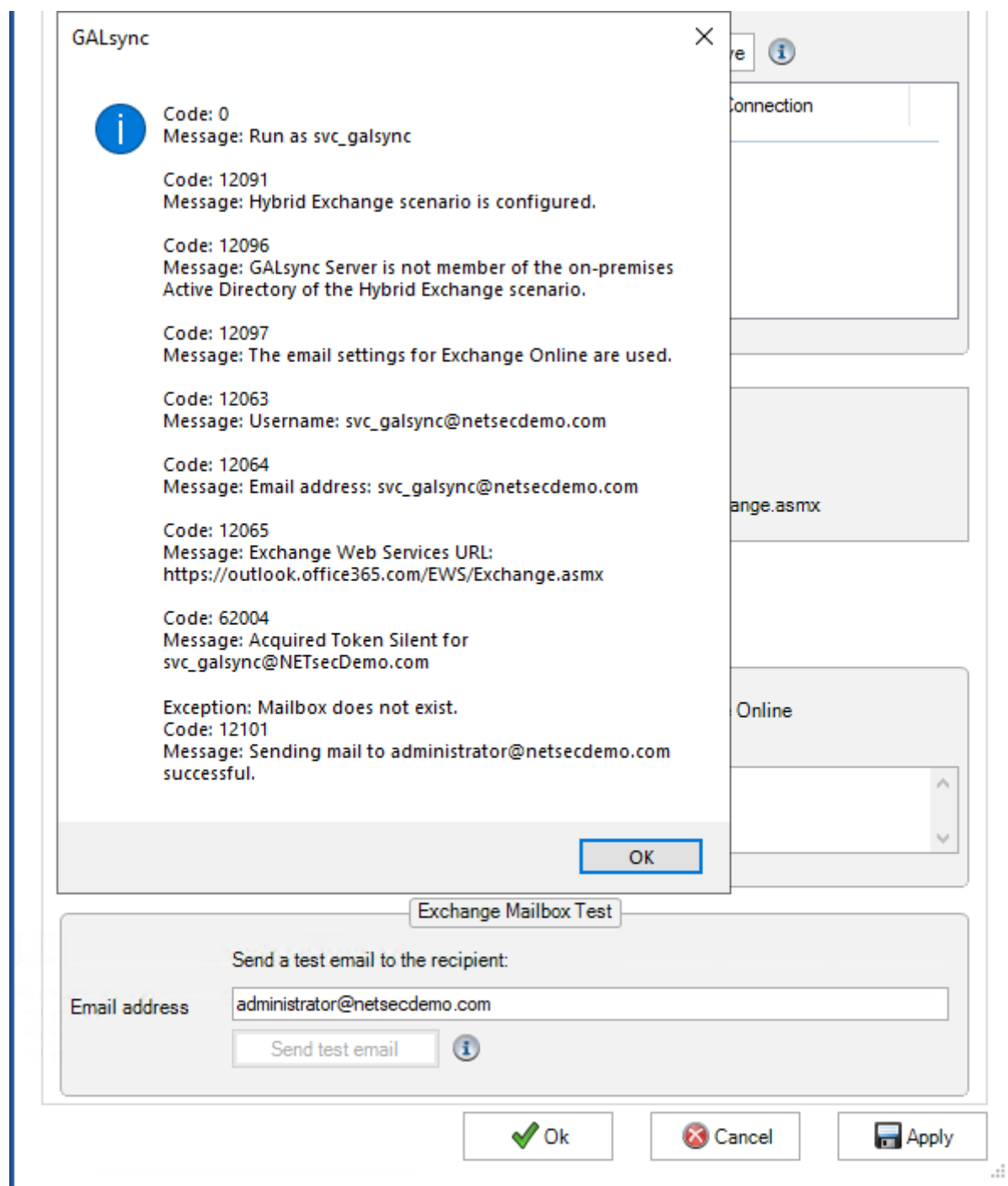


GALsync can now use OAuth tokens for authentication to access the Exchange Web Services (EWS) for your Exchange Online during the policy runs.

Click **Apply** to close the **Exchange Online Credentials** dialog.



A test email can also be sent to the desired recipient as an additional test to validate mail flow. To do this, click the **Send test email** button for the **Exchange Mailbox Test**.



*Please note, that the email address of the recipient for the test email will not be saved.*

Also, please see the GALsync manual chapter:

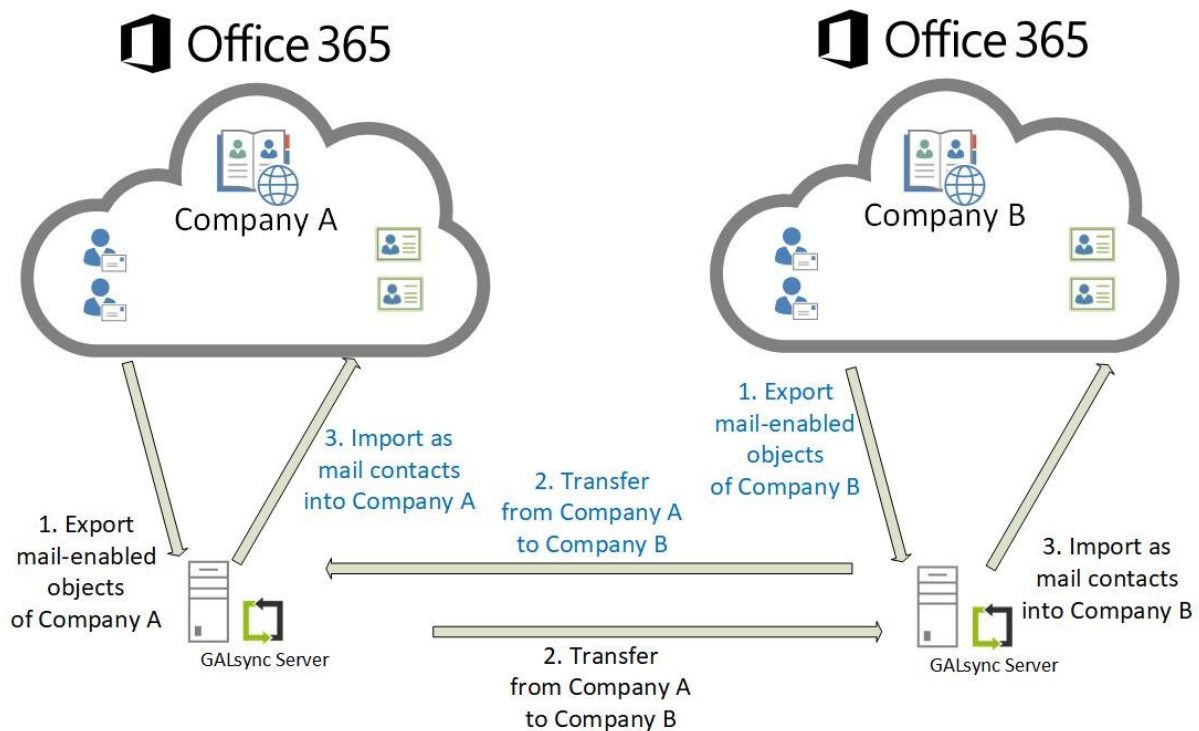
#### **12010 - Error getting Exchange Online connection**

## Exchange Online to Exchange Online Synchronization

### Synchronizing between different Exchange Online environments

#### Separate GALsync Server for each Microsoft 365 Exchange Online tenant

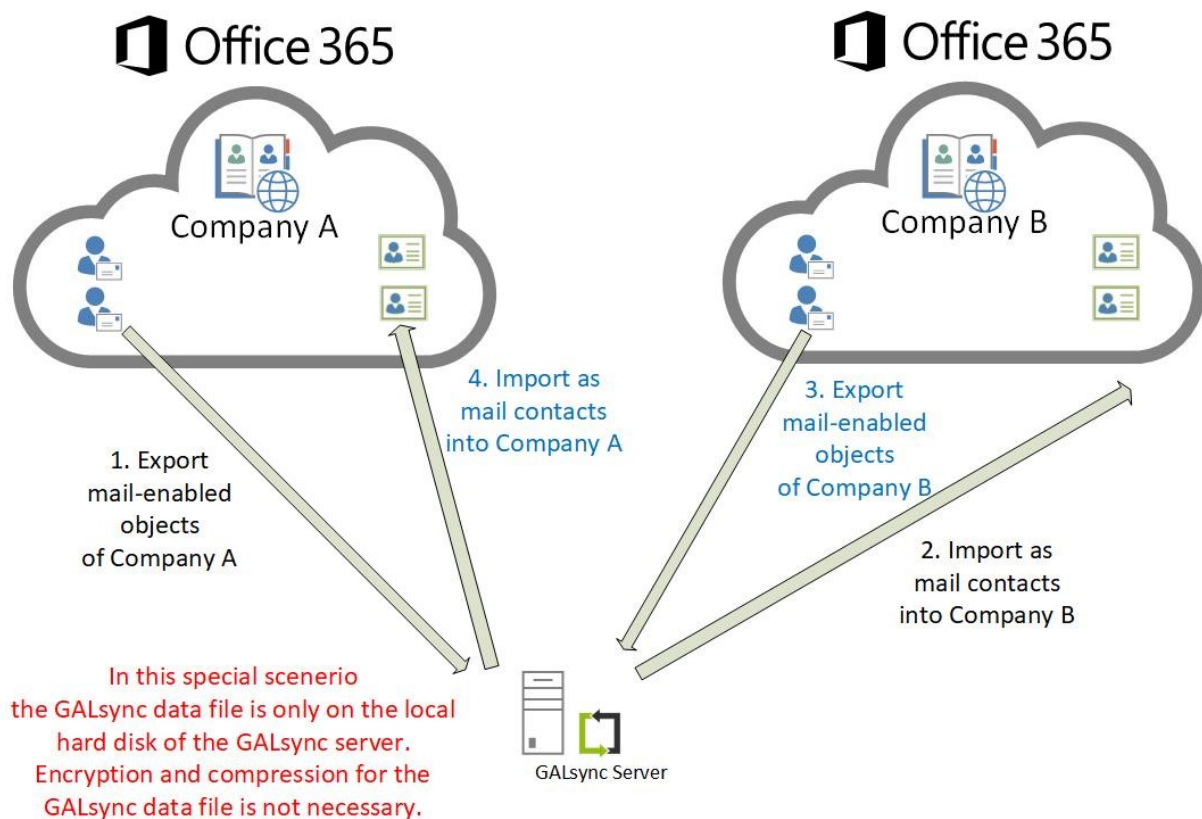
If you want to directly synchronize between different Microsoft 365 Exchange Online tenants, you can use a separate GALsync Server for each Microsoft 365 tenant.



In this scenario, the administrator of each Microsoft 365 Exchange Online tenant configures an Environment Configuration for their own Exchange environment. The corresponding policies for export and import are configured within the Environment Configuration of the Exchange environment.

## One GALsync Server for all Microsoft 365 Exchange Online tenant

You can use one GALsync Server for all Microsoft 365 Exchange Online tenants. This is only possible for Exchange environments, in which you do not need to synchronize the Global Address List (GAL) to an on-premises Exchange.

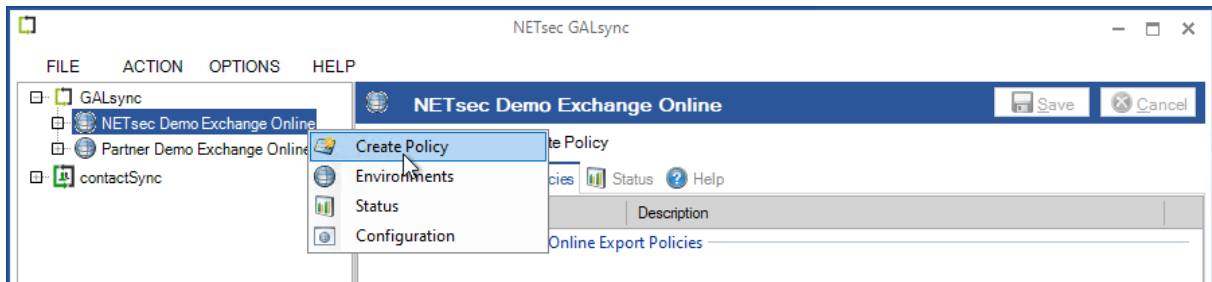


In this scenario you need the GALsync service account credentials of each Microsoft 365 Exchange Online tenant to configure an Environment Configuration for each Exchange environment. The corresponding policies for export and import for each Exchange environment are configured to the corresponding Environment Configuration of the Exchange environment.

How to configure this scenario is described below in a step-by-step guide:

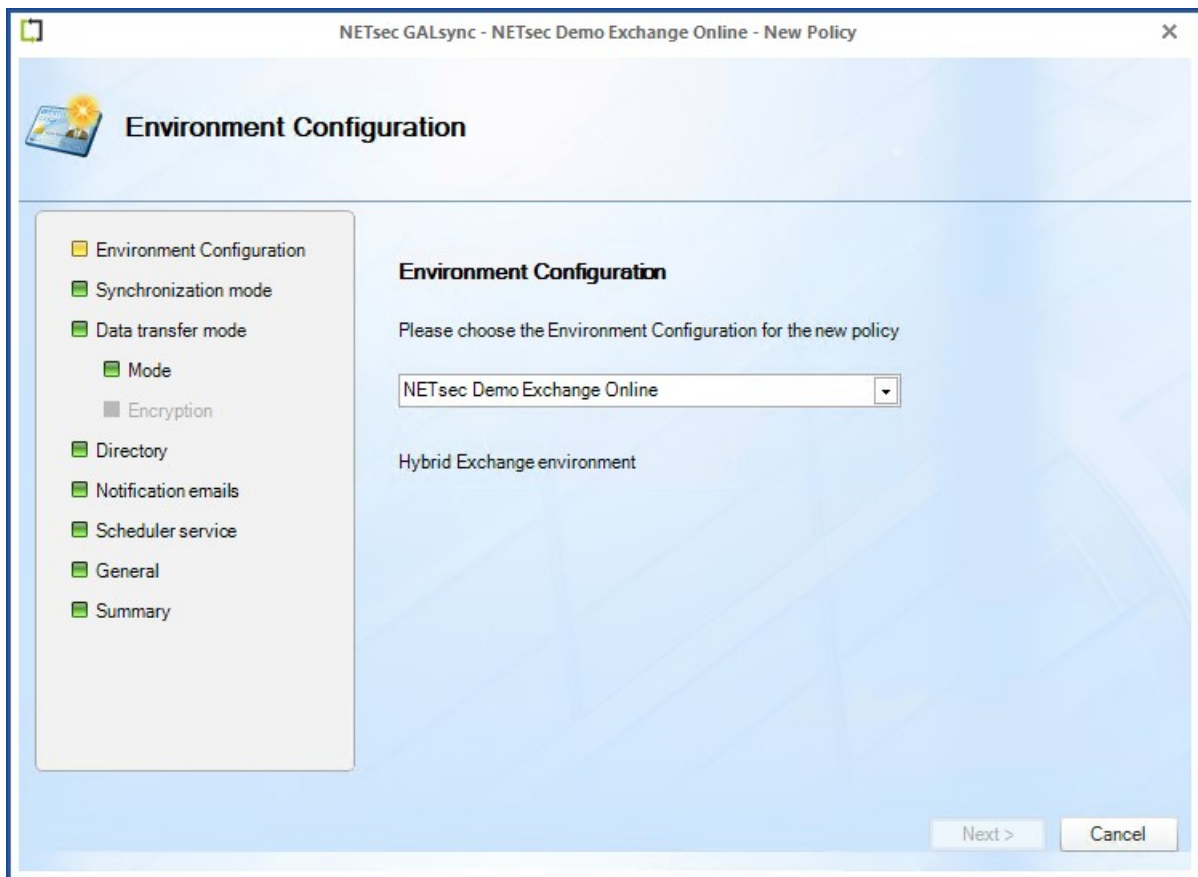
## Create and Run Export Policy from Exchange Online

Right-click the environment where GALsync will export the objects from, then select **Create Policy**



The selected environment will be displayed. If the wrong environment was selected, it can be changed by clicking the dropdown arrow, and reselecting it.

Then click **Next**.



Select **Export directory information**.

Click **Next**.

The screenshot shows a window titled "NETsec GALsync - NETsec Demo Exchange Online - New Policy". The main heading is "New Export Policy for Exchange Online". On the left is a sidebar with a tree view containing the following items: Environment Configuration, Synchronization mode, Data transfer mode (with sub-items manual and Encryption), Directory, Notification emails, Scheduler service, General, and Summary. The "Synchronization mode" item is highlighted. The main content area is titled "Synchronization mode" and contains two sections:

**1. What do you want to do?**

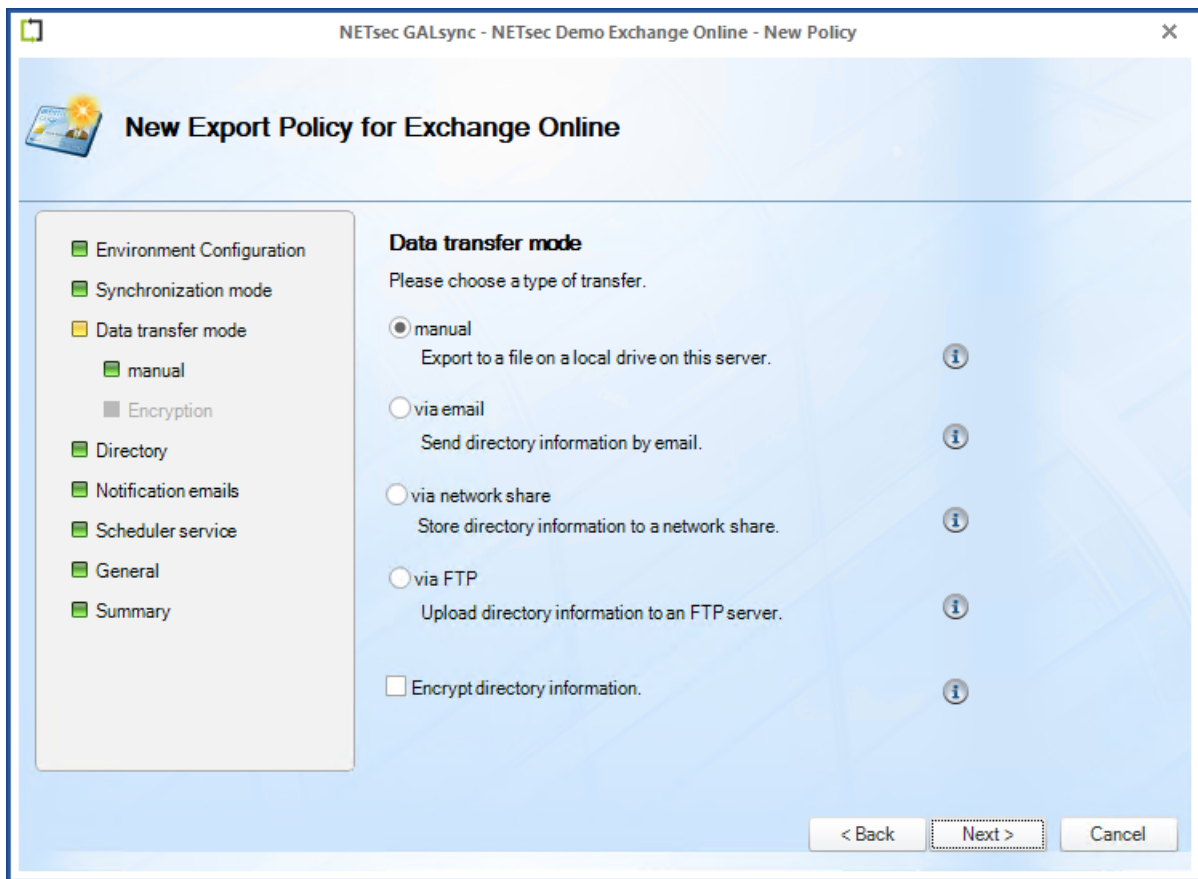
- ☒ Export directory information (GAL) [info icon]
- ☐ Import directory information (GAL) [info icon]

**2. What kind of environment do you have?**

- ☐ An on-premises Exchange organization or a hybrid Exchange organization. Export directory information (GAL) from an on-premises Exchange organization or from the on-premises part of a hybrid Exchange organization. [info icon]
- ☒ An Office 365 Exchange Online tenant or a hybrid Exchange organization. Export directory information (GAL) from an Office 365 Exchange Online tenant or directly from the Office 365 part of the hybrid Exchange organization. [info icon]

At the bottom right are three buttons: "< Back", "Next >" (which is highlighted with a dashed border), and "Cancel".

Select **manual – Export to a file on a local drive on this server**. Then click **Next**.



NETsec GALsync - NETsec Demo Exchange Online - New Policy

### New Export Policy for Exchange Online

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - manual**
  - Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

#### Data transfer mode

Please choose a type of transfer.

- ☒ manual  
Export to a file on a local drive on this server. ⓘ
- ☐ via email  
Send directory information by email. ⓘ
- ☐ via network share  
Store directory information to a network share. ⓘ
- ☐ via FTP  
Upload directory information to an FTP server. ⓘ
- ☐ Encrypt directory information. ⓘ

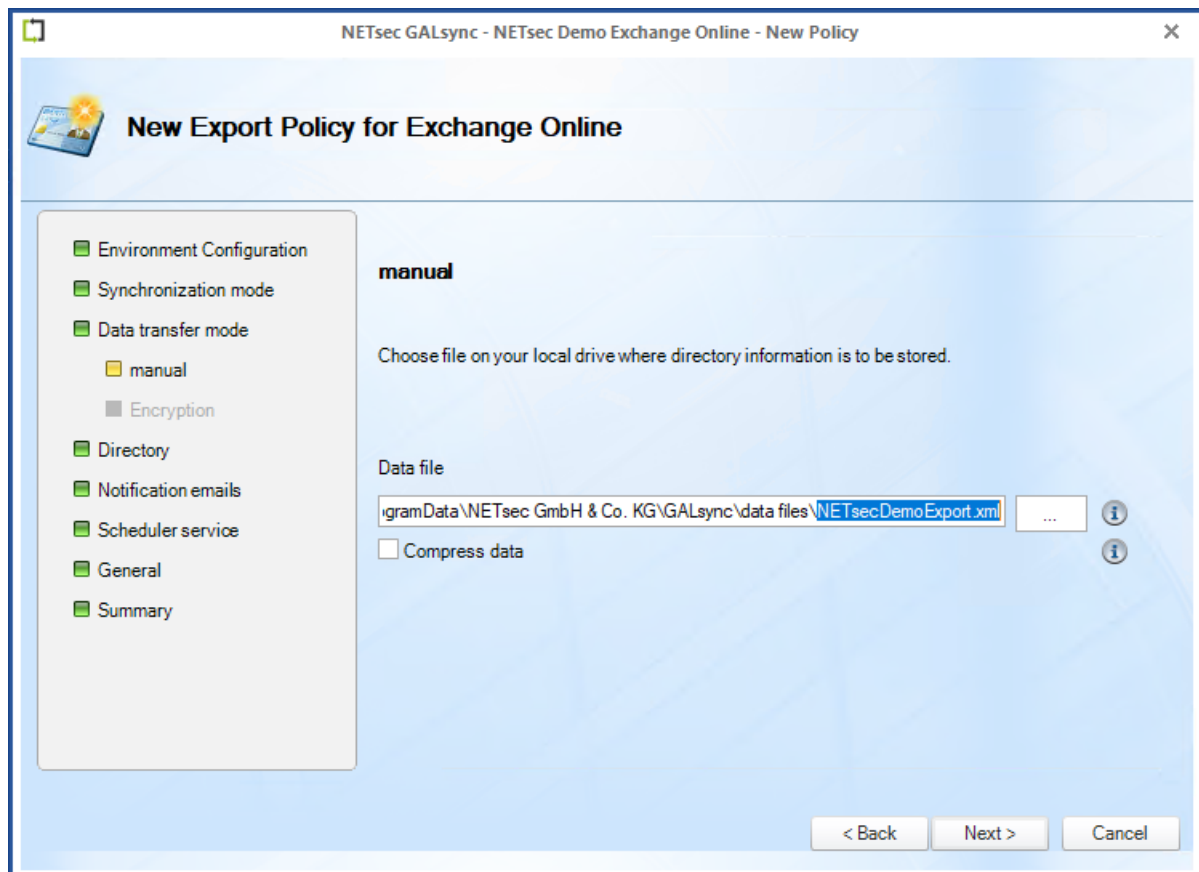
< Back   Next >   Cancel

The default path and filename for the data file is:

```
C:\ProgramData\NETsec GmbH & Co. KG\GALsync\data files\datafile.xml
```

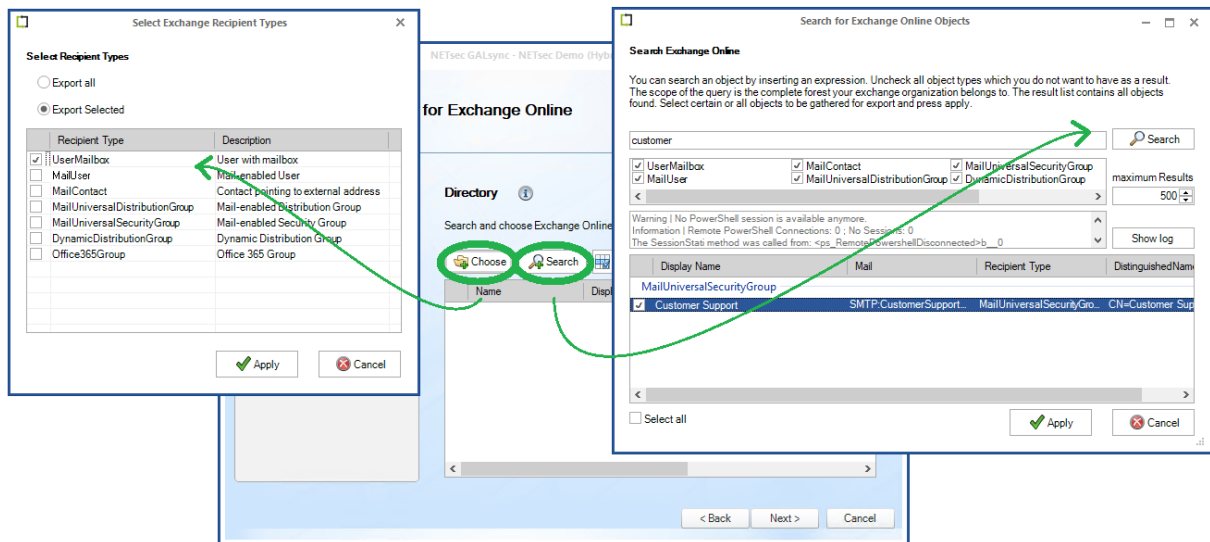
We recommend the filename is changed to one that easily identifies the origin of its contents. Clicking the box to the right of this field, will allow you to choose the path where the file is saved.

Click **Next**

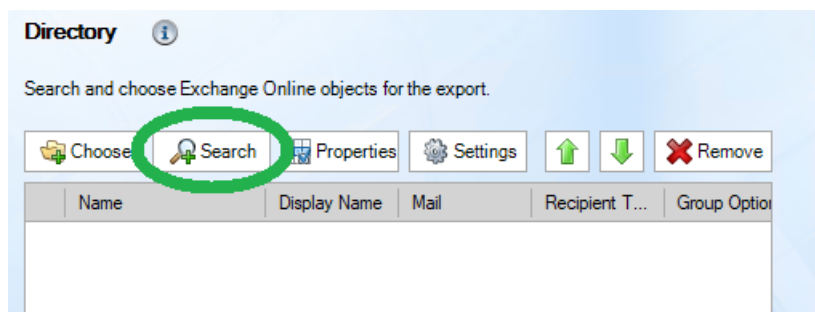


There are two ways to select objects to be exported.

3. Click **Choose** to select objects by **Recipient Type**.
4. Click **Search** to search via PowerShell query for individual mail-enabled objects.



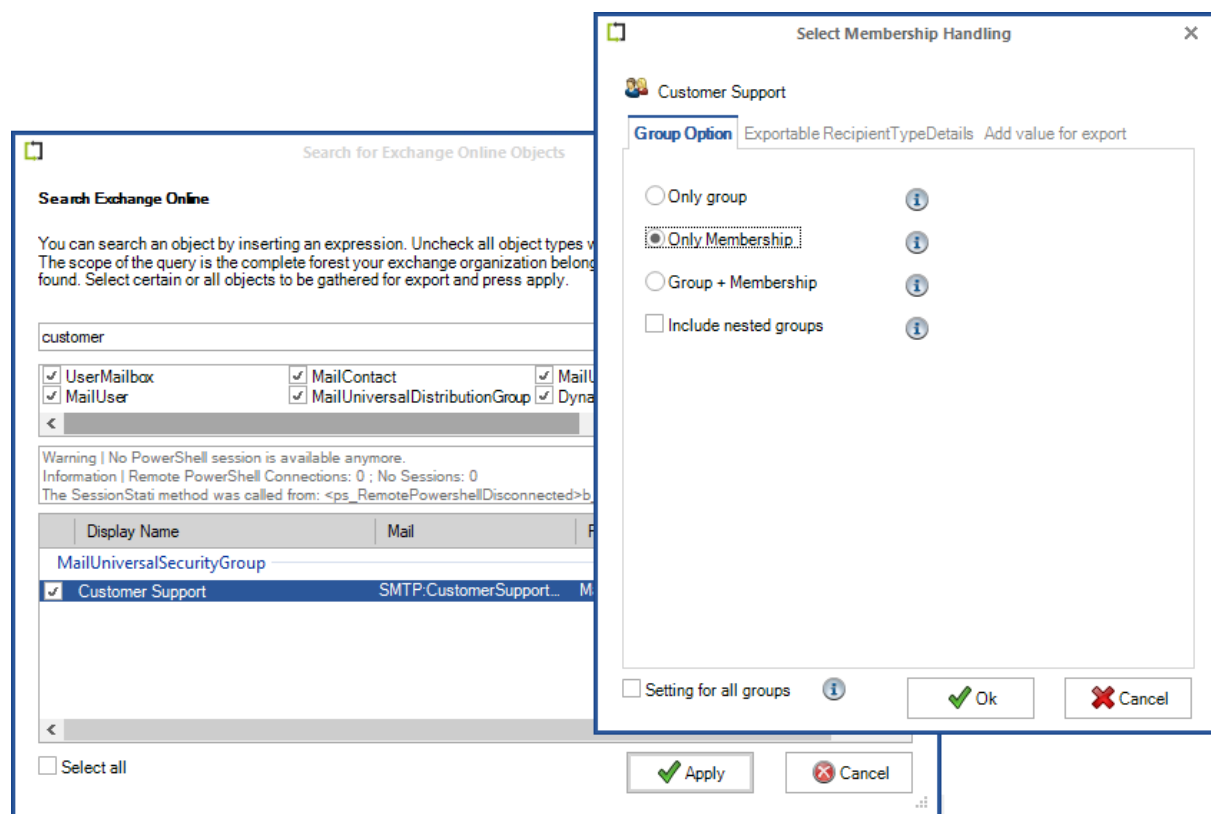
If using a trial license which is limited to 100 objects, we recommend using the **Search** function which will allow a smaller sample of objects to be exported.





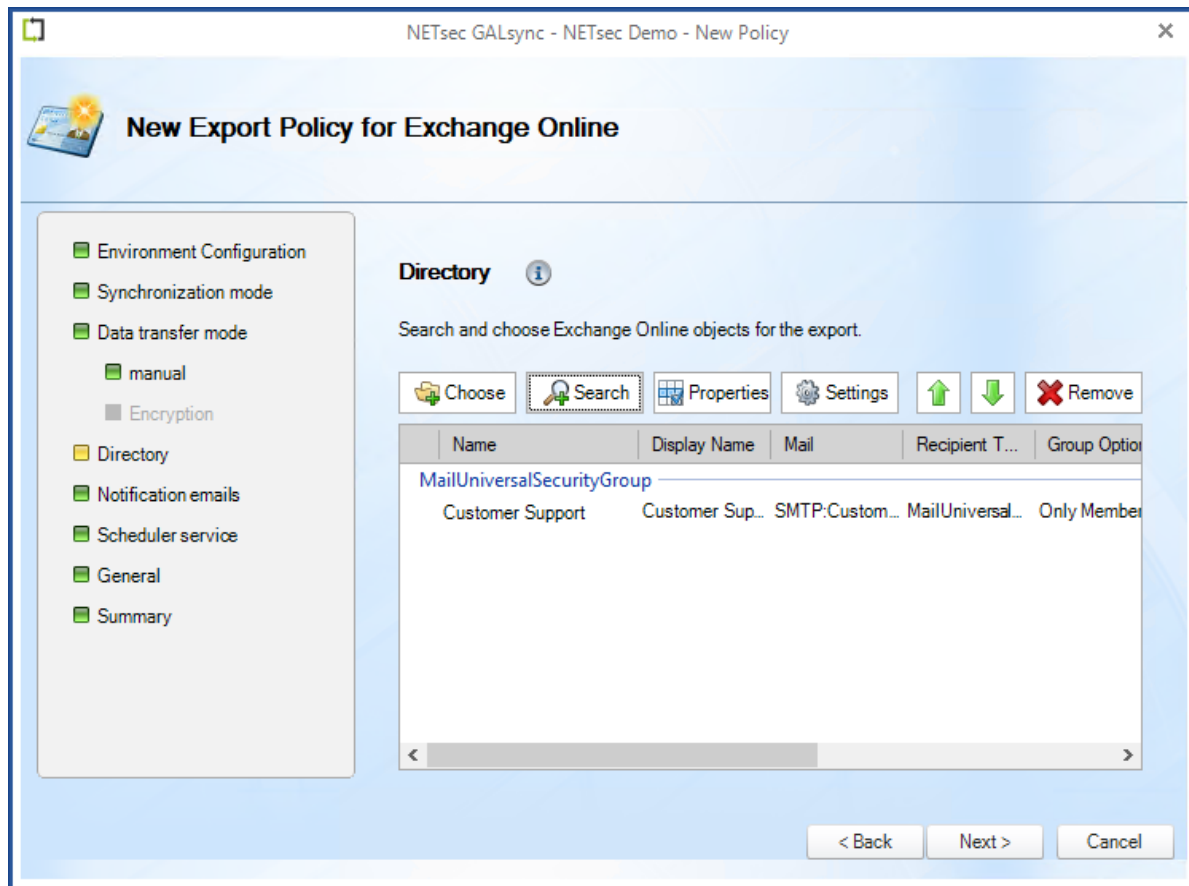
A search for the Customer Support Security Group has been performed, which will permit the members of this group to be exported. When the query results are returned, check the corresponding checkbox for the desired selection, then click **Apply**.

Select **Only Membership** to export the members of this group, then click **OK**.



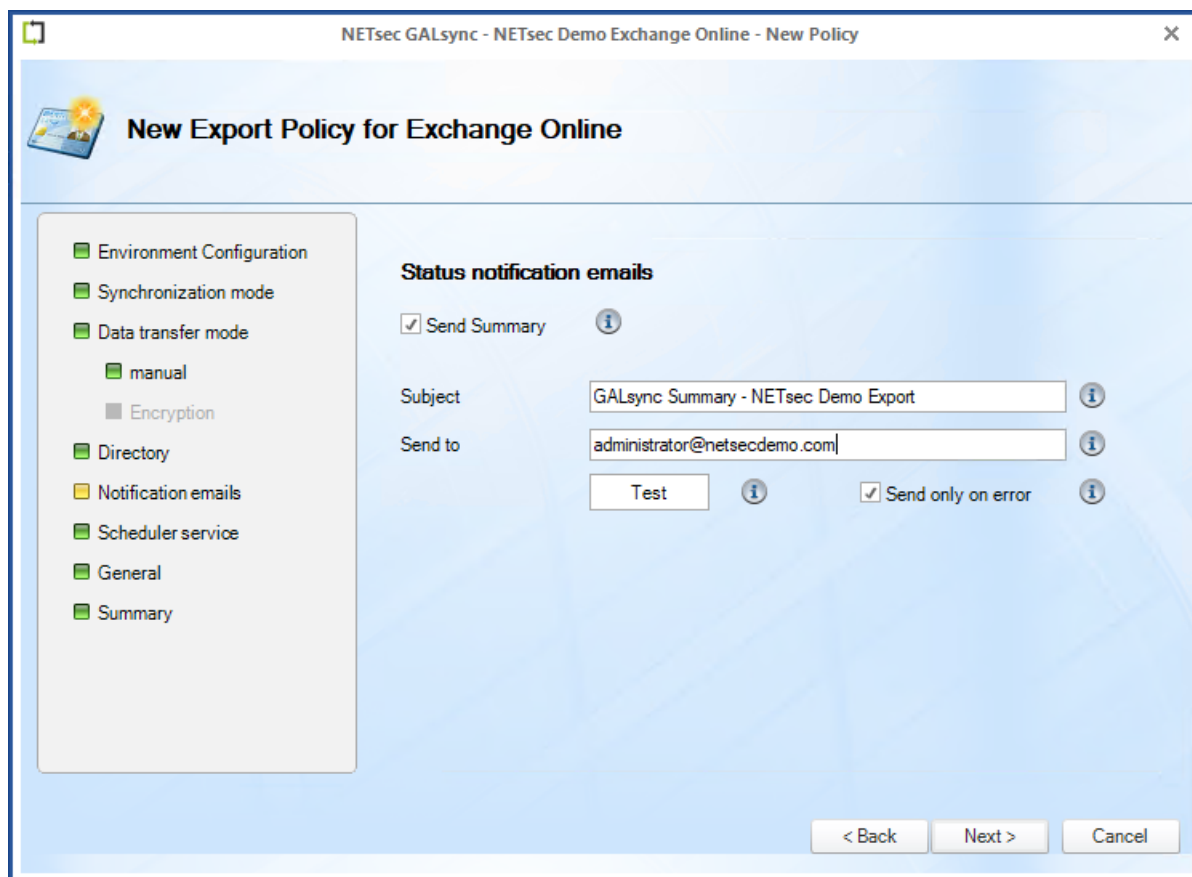
Ensure the selected group is displayed.

Then click **Next**.



An optional status notification email can be sent to the specified recipient(s) each time the policy runs, which provides a brief summary of activity. However, if your preference is to receive one only when an error has been logged, check the **Send only on error** checkbox. Click the **Test** button to send a test email. Then verify it has been received.

Click **Next**.



NETsec GALsync - NETsec Demo Exchange Online - New Policy

### New Export Policy for Exchange Online

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - manual
  - Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

#### Status notification emails

☒ Send Summary ⓘ

Subject:  ⓘ

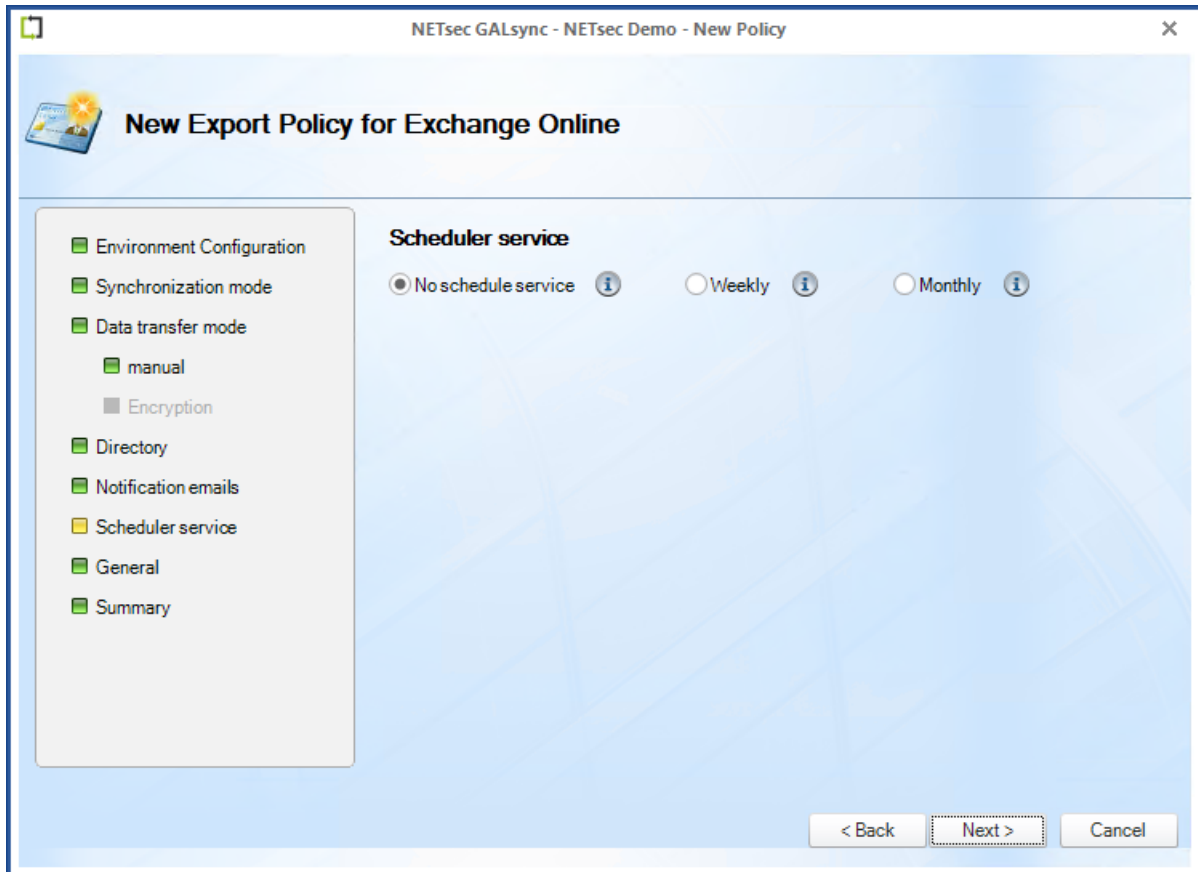
Send to:  ⓘ

ⓘ ☒ Send only on error ⓘ

< Back   Next >   Cancel

GALsync can be scheduled to run at regular intervals. We recommend the policy is manually run before any schedules are set. After the synchronization has completed successfully, you can go back and set it to run on the desired schedule.

Click **Next**.

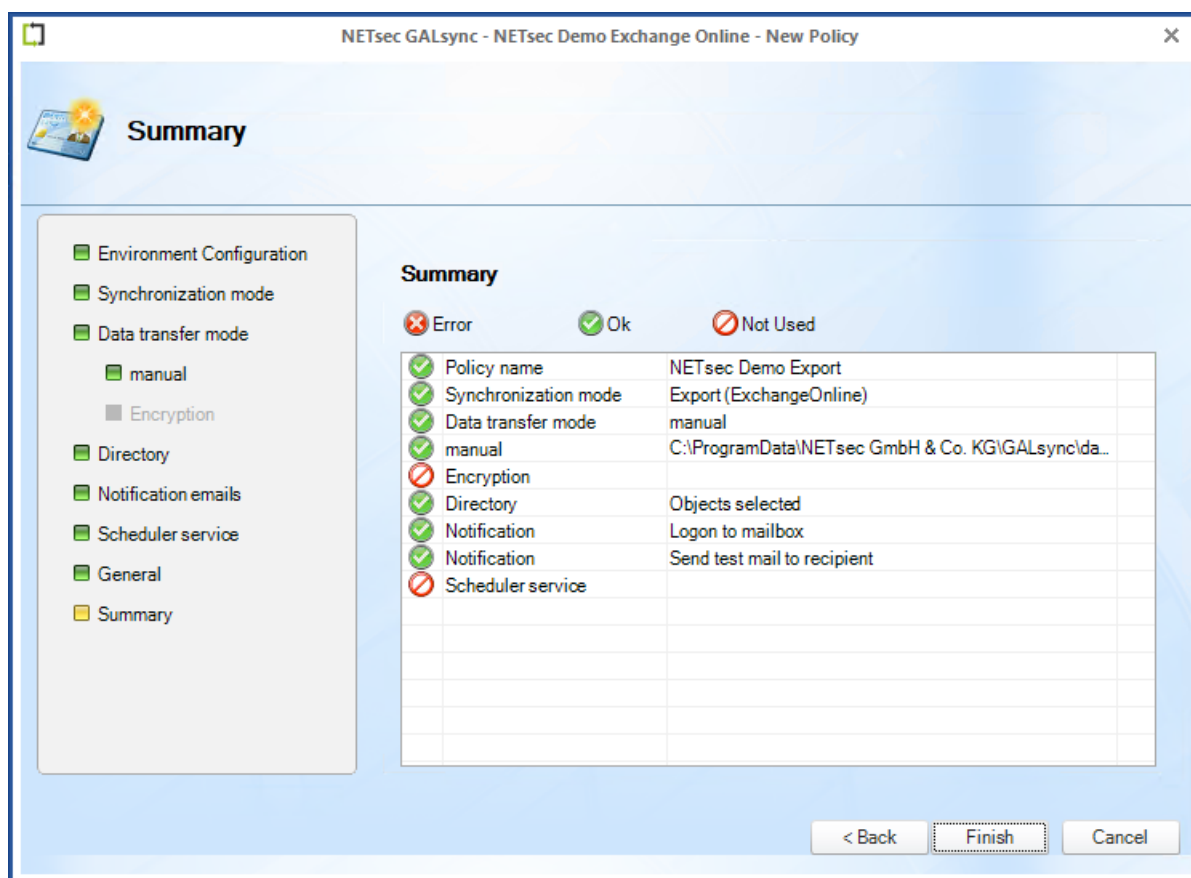


Enter a policy name and an optional description, then click **Next**.

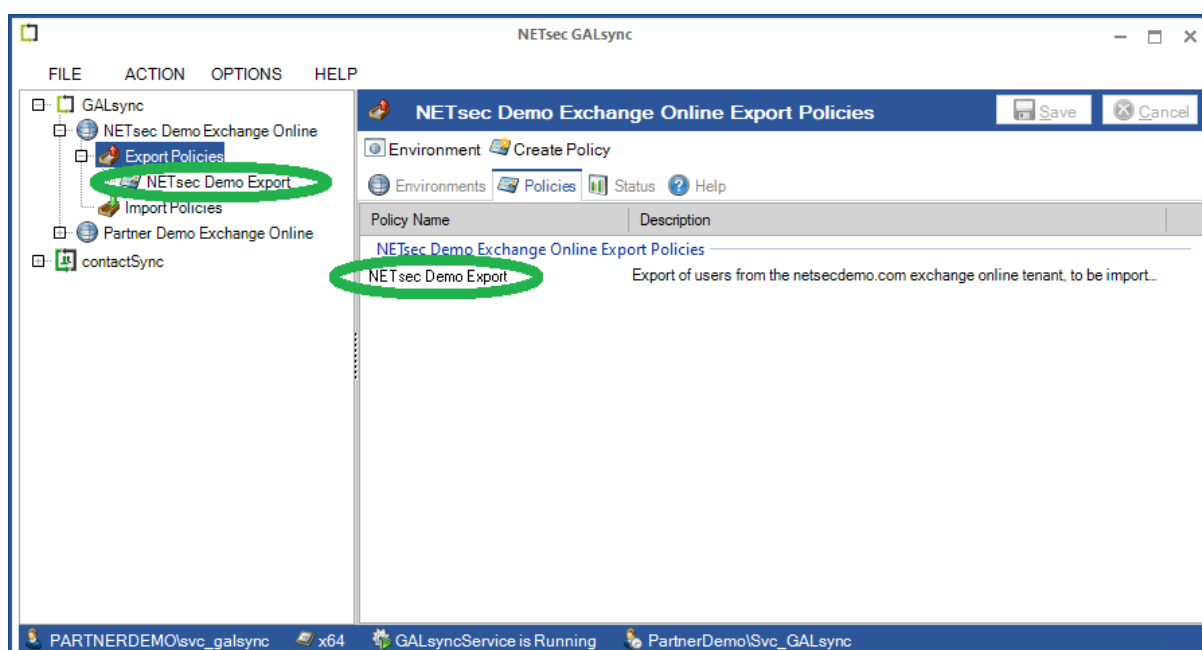
The screenshot shows a window titled "NETsec GALsync - NETsec Demo Exchange Online - New Policy". The main heading is "New Export Policy for Exchange Online". On the left is a sidebar with a tree view containing the following items: Environment Configuration, Synchronization mode, Data transfer mode (with sub-items "manual" and "Encryption"), Directory, Notification emails, Scheduler service, General (highlighted), and Summary. The main area is titled "General" and contains three fields: "Policy Name" with the value "NETsec Demo Export", "Description" with the text "Export of users from the netsecdemo.com exchange online tenant, to be imported into the partnerdemo.de exchange online tenant as contacts to be published in the GAL", and "Environment Configuration" with a dropdown menu showing "NETsec Demo Exchange Online". At the bottom right are three buttons: "< Back", "Next >" (which is highlighted with a dashed border), and "Cancel".

To ensure your settings have been properly configured GALsync will check your policy settings and notify you of any detected errors.

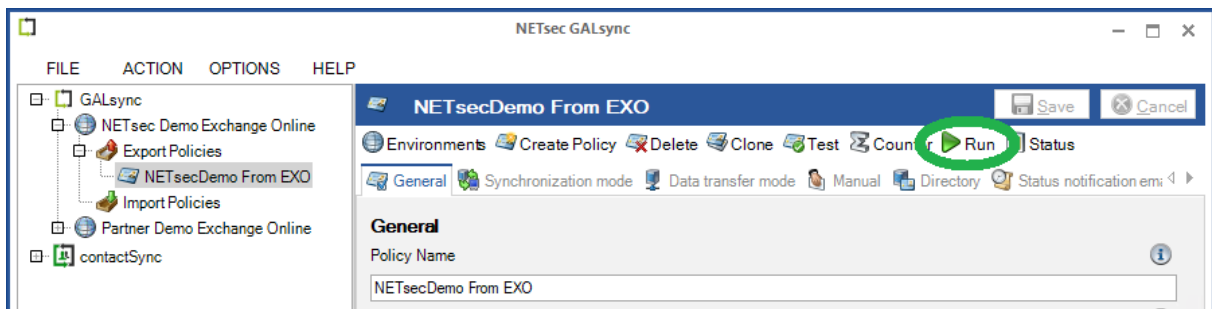
Click **Finish**.



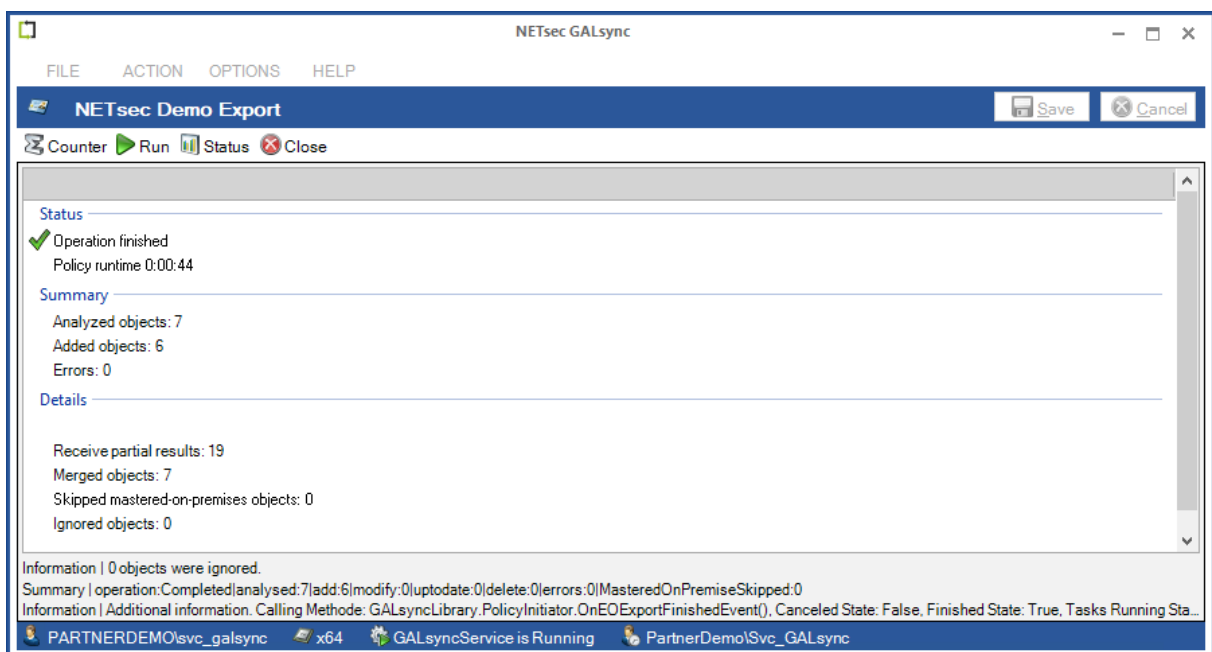
The new policy is accessible by selecting it from either link shown below.



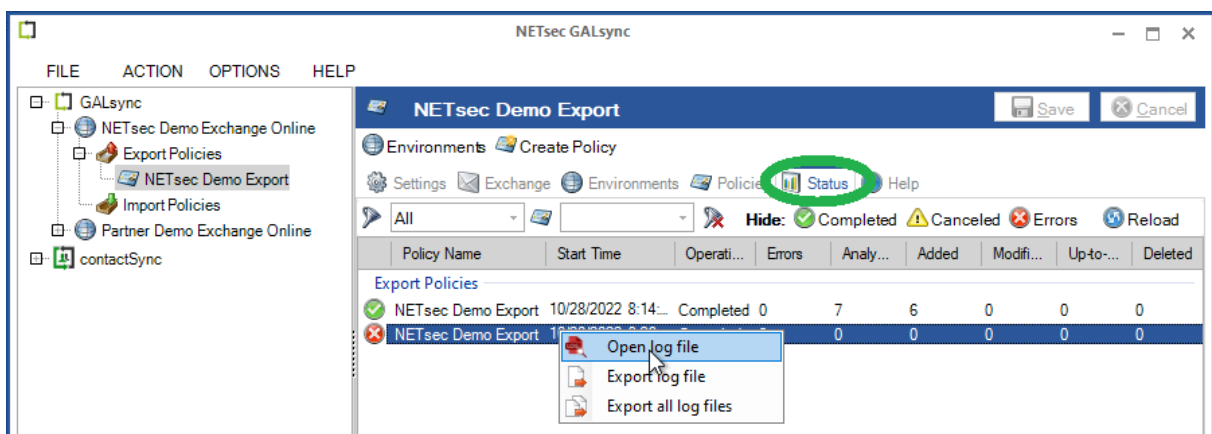
Select the policy node. Then click **Run**.



GALsync successfully exported 6 objects.



The corresponding log file can be opened by selecting the Status tab, and right-clicking the associated log and selecting **Open log file** from the context menu. This allows you to easily find the error and identify its cause, as shown in the example below.



Searching for the string "error" yields 5 log entries containing this string.

Double-click the line which contains the error. This will highlight the line in the log which contains the details of this log entry.

Double-click the highlighted line in the log viewer.

The screenshot shows the NETsec LogViewer interface. The main window displays a list of log entries with columns: Timestamp, Policy, Type, Code, Task, Thread, and Source. A search filter 'error' is applied, resulting in 5 entries. The entry at timestamp 20221028\_082635\_447 is selected. A secondary window, 'log20221028082635\_150x07700.txt - NETsec LogViewer Details', shows the expanded details for this entry. The details include the Timestamp (20221028\_082635\_447), Policy (NETsecDemoExport.xml), Type (Error), Code (12067), Task (12067), Thread (1), and Source (GALsyncLibrary.EWSManager.GetExchangeServiceForExchangeOnline()). The Message field contains the text: 'Error getting Exchange Web Services: One or more errors occurred. One or more errors occurred. Current user cannot decrypt the token. Key not valid for use in specified state.' The Exmessage field is empty. The Source field is GALsyncLibrary.EWSManager.GetExchangeServiceForExchangeOnline(). The bottom status bar shows '© 2022 NETsec GmbH & Co. KG - Version 2.4.0.0' and the file path 'C:\ProgramData\NETsec GmbH & Co. KG\GALsync\log files\log20221028\_082635\_150x07700.txt'.

Timestamp	Policy	Type	Code	Task	Thread	Source
20221028_082635_306	NETsecDemoExport.xml	Information	16095	1	7	G
20221028_082635_306	NETsecDemoExport.xml	Information	16098	1	7	G
20221028_082635_306	NETsecDemoExport.xml	System	16081	1	7	G
20221028_082635_306	NETsecDemoExport.xml	System	16082	1	7	G
20221028_082635_306	NETsecDemoExport.xml	System	16012	1	7	G
20221028_082635_306	NETsecDemoExport.xml	System	16013	1	7	G
20221028_082635_306	NETsecDemoExport.xml	System	16071	1	7	G
20221028_082635_306	NETsecDemoExport.xml	System	16032	1	7	G
20221028_082635_322	NETsecDemoExport.xml	Error	16086	1	7	G
20221028_082635_322	NETsecDemoExport.xml	ProcessData	17050	1	7	G
20221028_082635_322	NETsecDemoExport.xml	Error	16040	1	7	G
20221028_082635_353	NETsecDemoExport.xml	Information	17055	1	7	G
20221028_082635_353	NETsecDemoExport.xml	Information	12091	1	7	G
20221028_082635_353	NETsecDemoExport.xml	Information	12096	1	7	G
20221028_082635_353	NETsecDemoExport.xml	Information	12097	1	7	G
20221028_082635_353	NETsecDemoExport.xml	Information	12063	1	7	G
20221028_082635_353	NETsecDemoExport.xml	Information	12064	1	7	G
20221028_082635_353	NETsecDemoExport.xml	Information	12065	1	7	G
20221028_082635_447	NETsecDemoExport.xml	Error	12067	1	7	GALsyncLibrary.EWSManager.GetExchangeServiceForExchangeOnline()

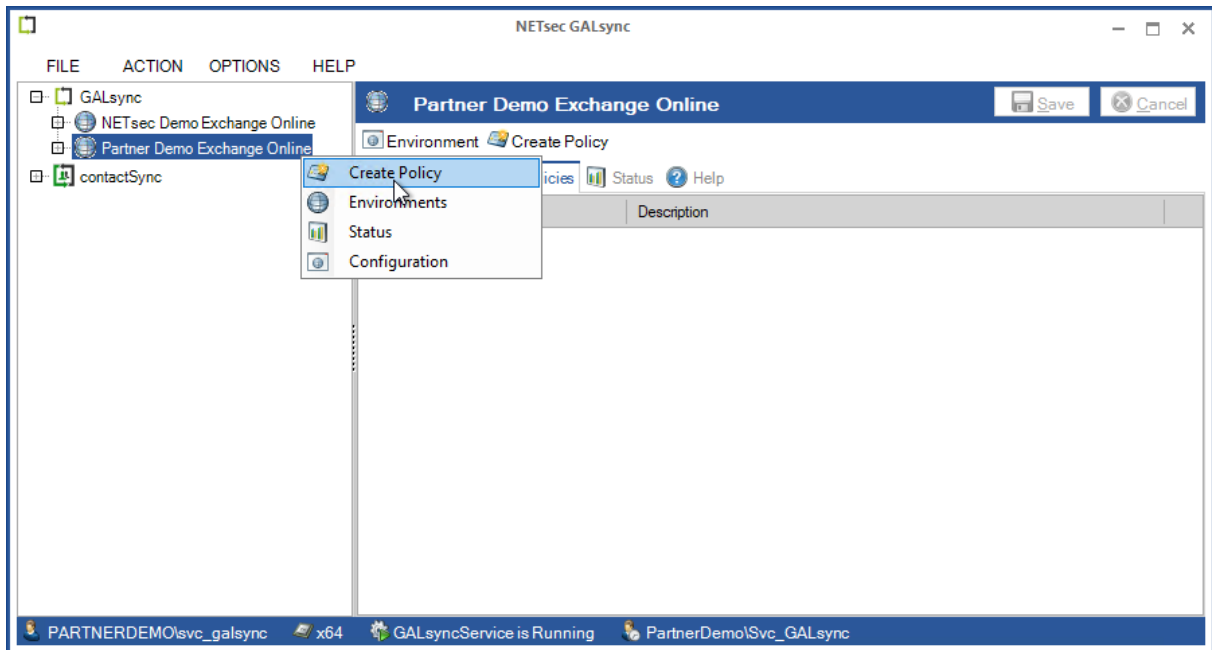
5 results found

Timestamp	Policy	Type	Code	Task	Thread	Source	Message
20221028_082635_322	NETsecDemoExport.xml	Error	16086	1	7	GALsyncLibrary.PolicyInitiator.DoAction()	No credentials available! Policy is canceled.
20221028_082635_322	NETsecDemoExport.xml	Error	16040	1	7	GALsyncLibrary.PolicyInitiator.DoAction()	Unknown policy direction. Policy is canceled.
20221028_082635_447	NETsecDemoExport.xml	Error	12067	1	7	GALsyncLibrary.EWSManager.GetExchangeServiceForExchangeOnline()	Error getting Exchange Web Services: One or more errors occurred. One or more errors occurred. Current user cannot decrypt the token. Key not valid for use in specified state.
20221028_082635_447	NETsecDemoExport.xml	Error	16069	1	7	GALsyncLibrary.PolicyInitiator.sendMessage()	Error connecting Exchange Online.
20221028_082635_447	NETsecDemoExport.xml	System	16043	1	7	GALsyncLibrary.PolicyInitiator.FinalizePolicy()	FinalizePolicy: Policy is canceled.

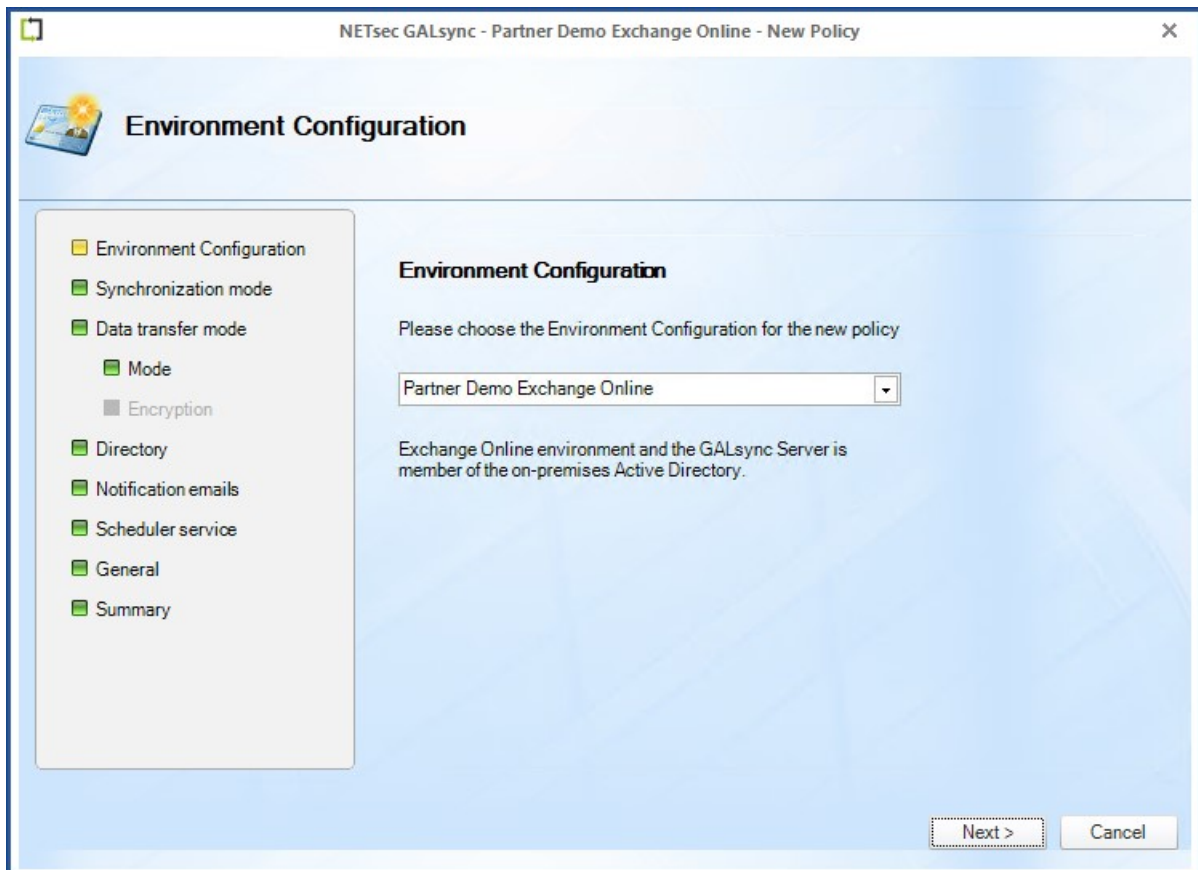


## Create and Run Import Policy for Exchange Online

A policy will now be created to import the objects which have been previously exported from the NETsec Demo Exchange Online tenant. Since these objects will be imported into the Partner Demo environment, right-click the Import Policies node under Partner Demo then select **Create policy**.



The **Partner Demo Exchange Online** environment has been preselected, click **Next**.



**Import directory information (GAL)** has been preselected. Select **An Microsoft 365 Exchange Online tenant or a hybrid Exchange environment** then click **Next**.

The screenshot shows a window titled "NETsec GALsync - Partner Demo Exchange Online - New Policy". The main heading is "New Import Policy for Exchange Online". On the left is a sidebar with a tree view containing the following items: Environment Configuration (selected), Synchronization mode, Data transfer mode, Mode, Encryption, Directory, Notification emails, Scheduler service, General, and Summary. The main area is titled "Synchronization mode" and contains two sections:

**1. What do you want to do?**

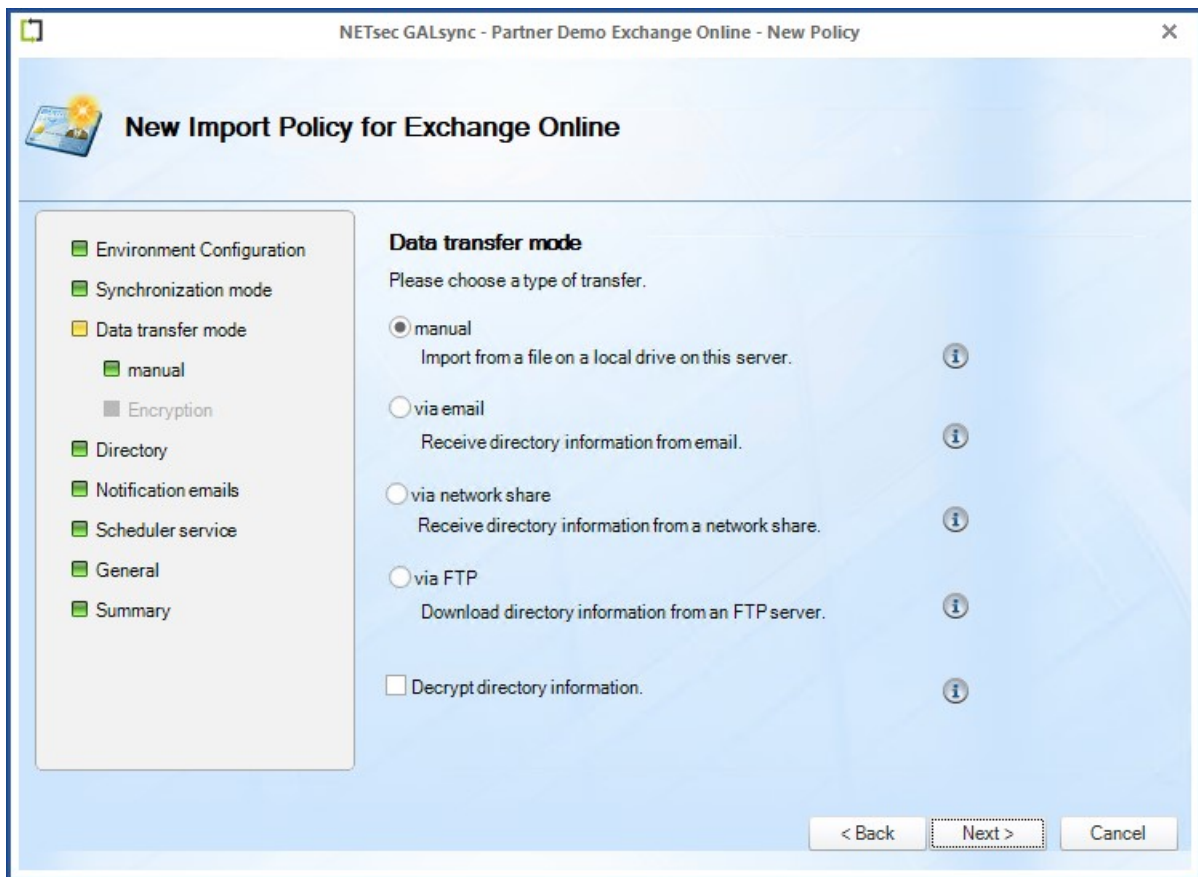
- ☐ Export directory information (GAL) [info icon]
- ☒ Import directory information (GAL) [info icon]

**2. What kind of environment do you have?**

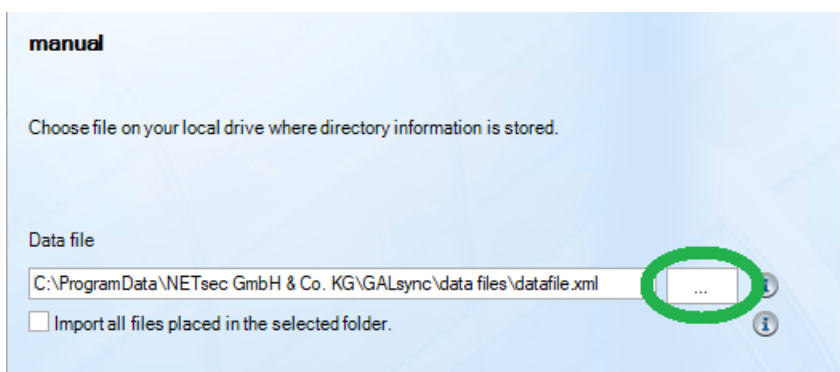
- ☐ An on-premises Exchange organization or a hybrid Exchange organization. Import directory information (GAL) to an on-premises Exchange organization or to the on-premises part of a hybrid Exchange organization. [info icon]
- ☒ An Office 365 Exchange Online tenant or a hybrid Exchange organization. Import directory information (GAL) to an Office 365 Exchange Online tenant. The Office 365 Exchange Online tenant can be part of a hybrid Exchange organization. [info icon]

At the bottom right are three buttons: "< Back", "Next >" (highlighted with a dotted border), and "Cancel".

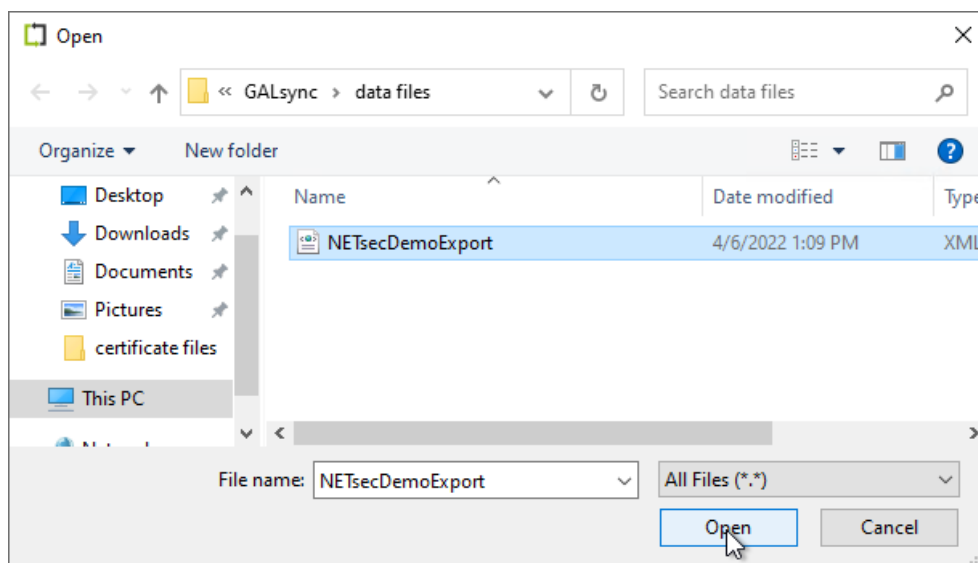
Select the **manual – Import from a file on a local drive on this server** radio button, then click **Next**.



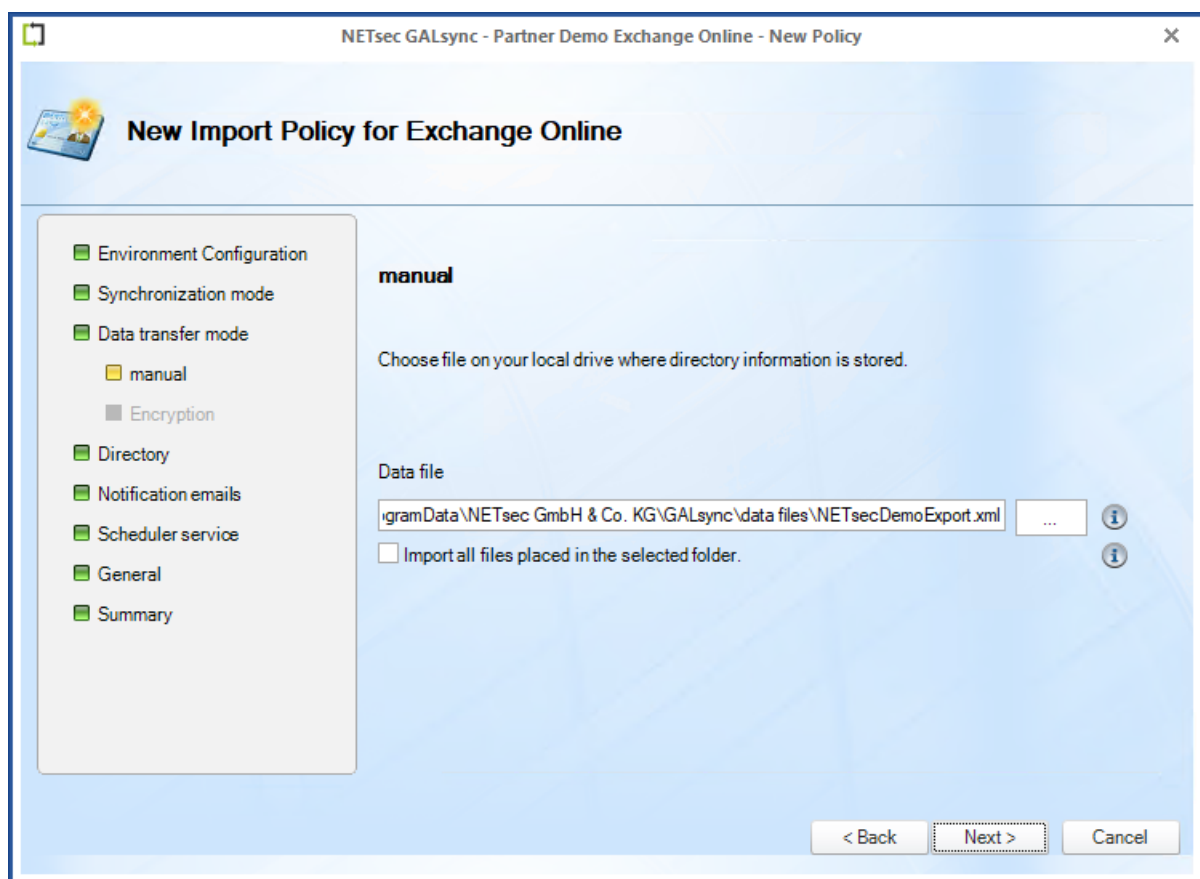
Click the button to the right of the data file path field to browse to and select the xml file which was previously exported.



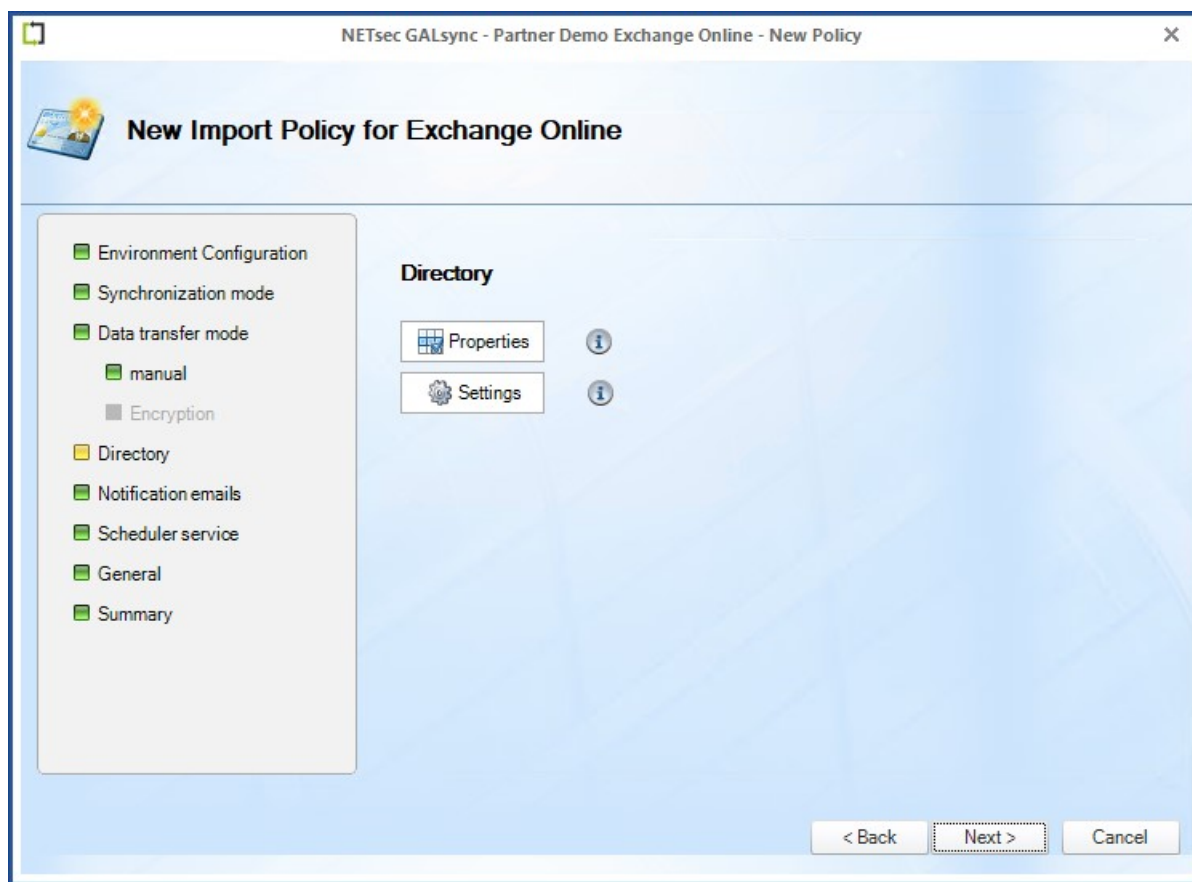
Select the appropriate data file, then click **Open**.



Click **Next**.



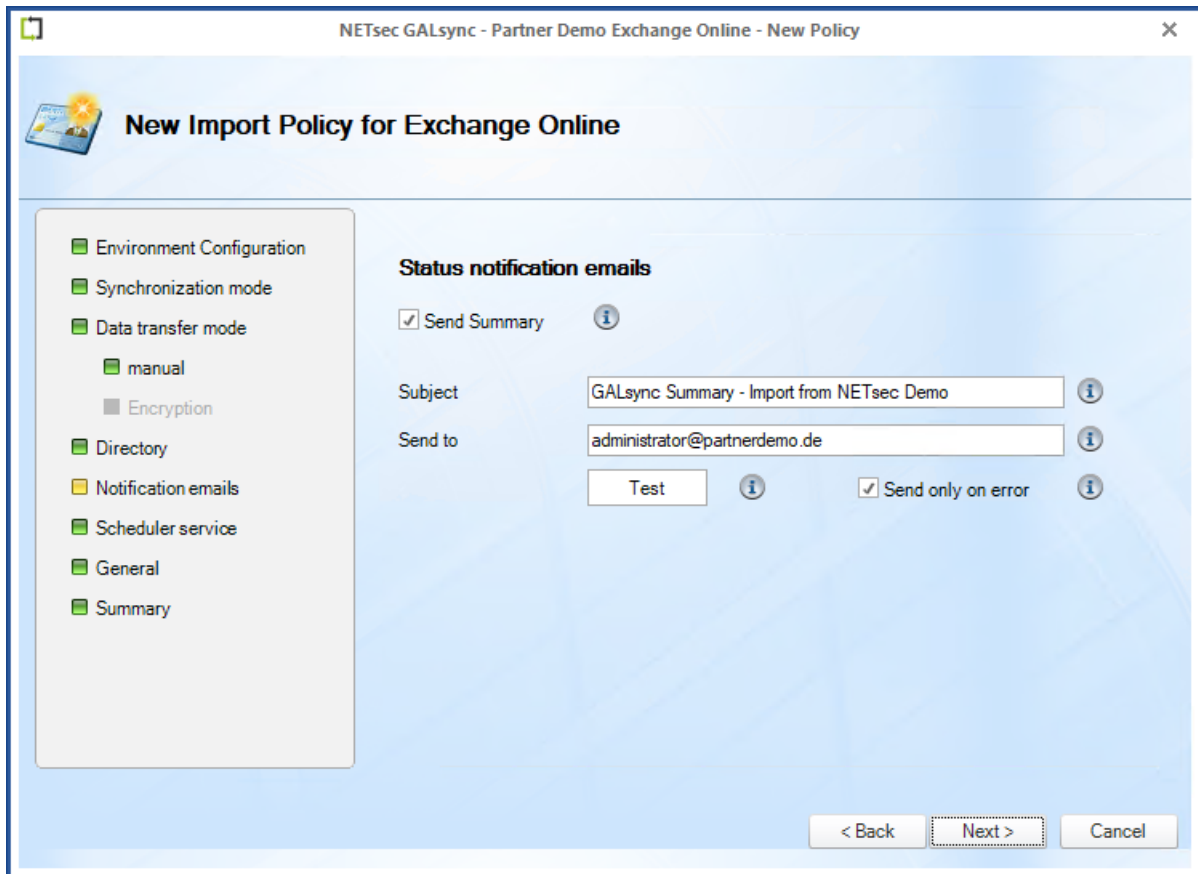
Click **Next** to bypass this window.



An optional status notification email can be configured to be sent each time the policy runs, which contains a brief summary of the export operation. It can be configured to **Send only on error**, when checked.

Click **Test** to send an optional test email to the specified recipient.

Click **Next**.



NETsec GALsync - Partner Demo Exchange Online - New Policy

### New Import Policy for Exchange Online

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - manual
  - Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

#### Status notification emails

☒ Send Summary ⓘ

Subject:  ⓘ

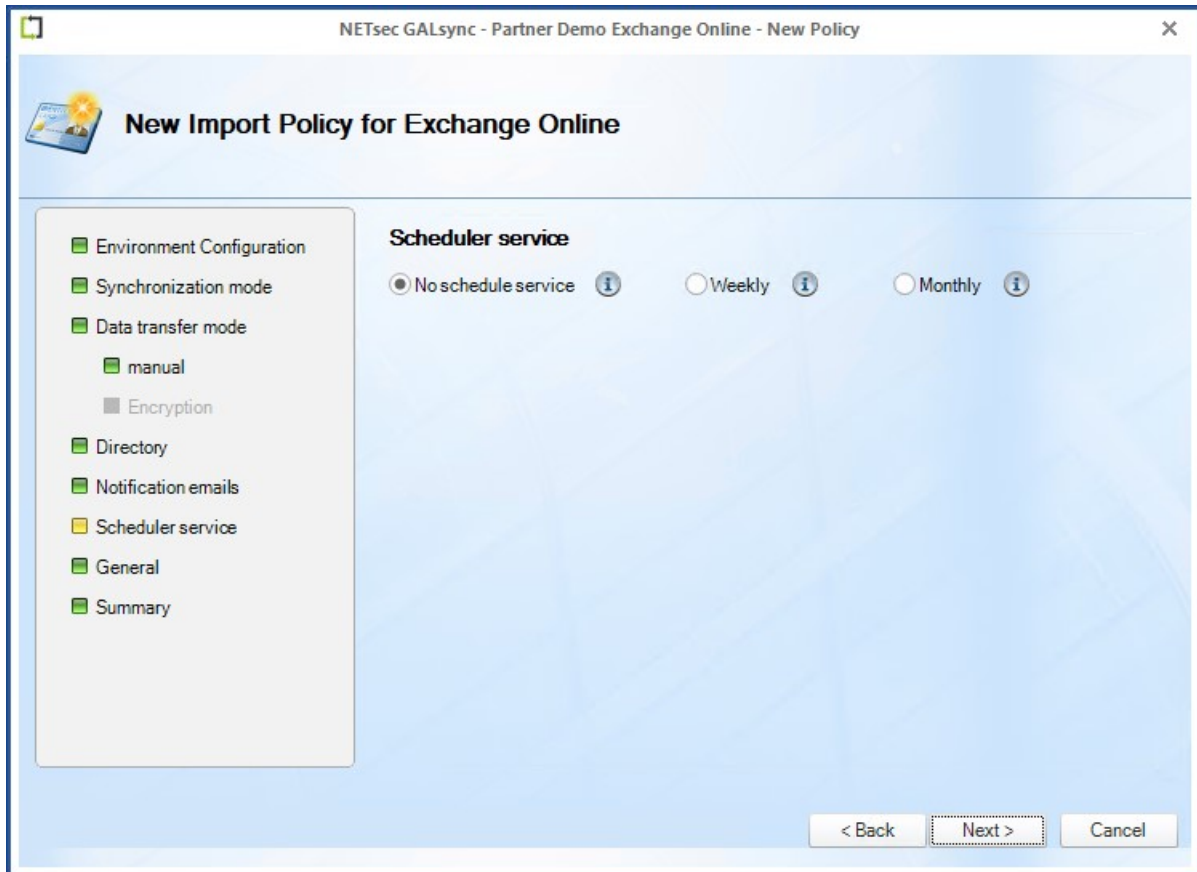
Send to:  ⓘ

ⓘ ☒ Send only on error ⓘ

< Back   Next >   Cancel

GALsync can be scheduled to run at regular intervals. We recommend the policy is manually run before any schedules are set. After the synchronization has completed successfully, you can go back and set it to run on the desired schedule.

Click **Next**.



NETsec GALsync - Partner Demo Exchange Online - New Policy

### New Import Policy for Exchange Online

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - manual
  - Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

#### Scheduler service

☒ No schedule service ⓘ ☐ Weekly ⓘ ☐ Monthly ⓘ

< Back Next > Cancel

Enter a policy name and optional description, then click **Next**.

The screenshot shows a window titled "NETsec GALsync - Partner Demo Exchange Online - New Policy". The main heading is "New Import Policy for Exchange Online". On the left is a sidebar with a tree view containing the following items: Environment Configuration, Synchronization mode, Data transfer mode (with sub-items "manual" and "Encryption"), Directory, Notification emails, Scheduler service, General (highlighted), and Summary. The main area is titled "General" and contains three sections: "Policy Name" with a text box containing "Import from NETsec Demo", "Description" with a text box containing "Import of user objects from the netsecdemo.com exchange online tenant into the partnerdemo.de exchange online tenant as contacts which are published in the online GAL", and "Environment Configuration" with a dropdown menu showing "Partner Demo Exchange Online". At the bottom right are three buttons: "< Back", "Next >" (which is highlighted with a dashed border), and "Cancel".



To ensure your settings have been properly configured GALsync will check your policy settings and notify you of any detected errors.

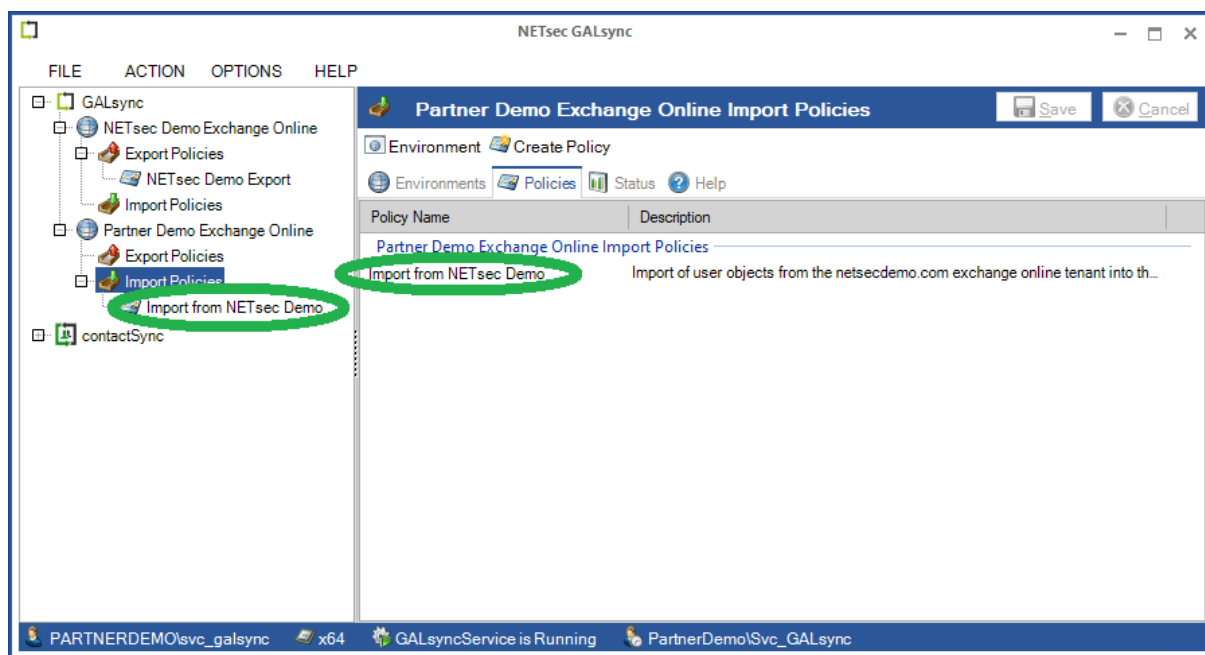
Click **Finish**.

The screenshot shows the 'Summary' window of the NETsec GALsync application. The window title is 'NETsec GALsync - Partner Demo Exchange Online - New Policy'. On the left is a sidebar with a tree view containing: Environment Configuration, Synchronization mode, Data transfer mode (with sub-items 'manual' and 'Encryption'), Directory, Notification emails, Scheduler service, General, and Summary (which is highlighted). The main area is titled 'Summary' and contains a table of configuration items. Above the table are three status indicators: 'Error' (red X), 'Ok' (green checkmark), and 'Not Used' (red circle with slash). The table lists the following items:

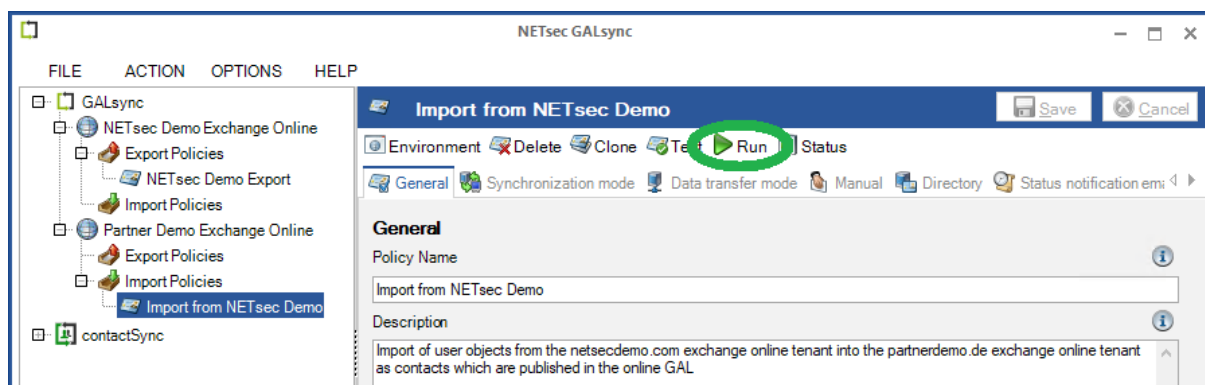
Status	Item	Value
Ok	Policy name	Import from NETsec Demo
Ok	Synchronization mode	Import (Exchange Online)
Ok	Data transfer mode	manual
Ok	manual	C:\ProgramData\NETsec GmbH & Co. KG\GALsync\da...
Error	Encryption	
Error	Directory	
Ok	Notification	Logon to mailbox
Ok	Notification	Send test mail to recipient
Error	Scheduler service	

At the bottom right of the window are three buttons: '< Back', 'Finish', and 'Cancel'.

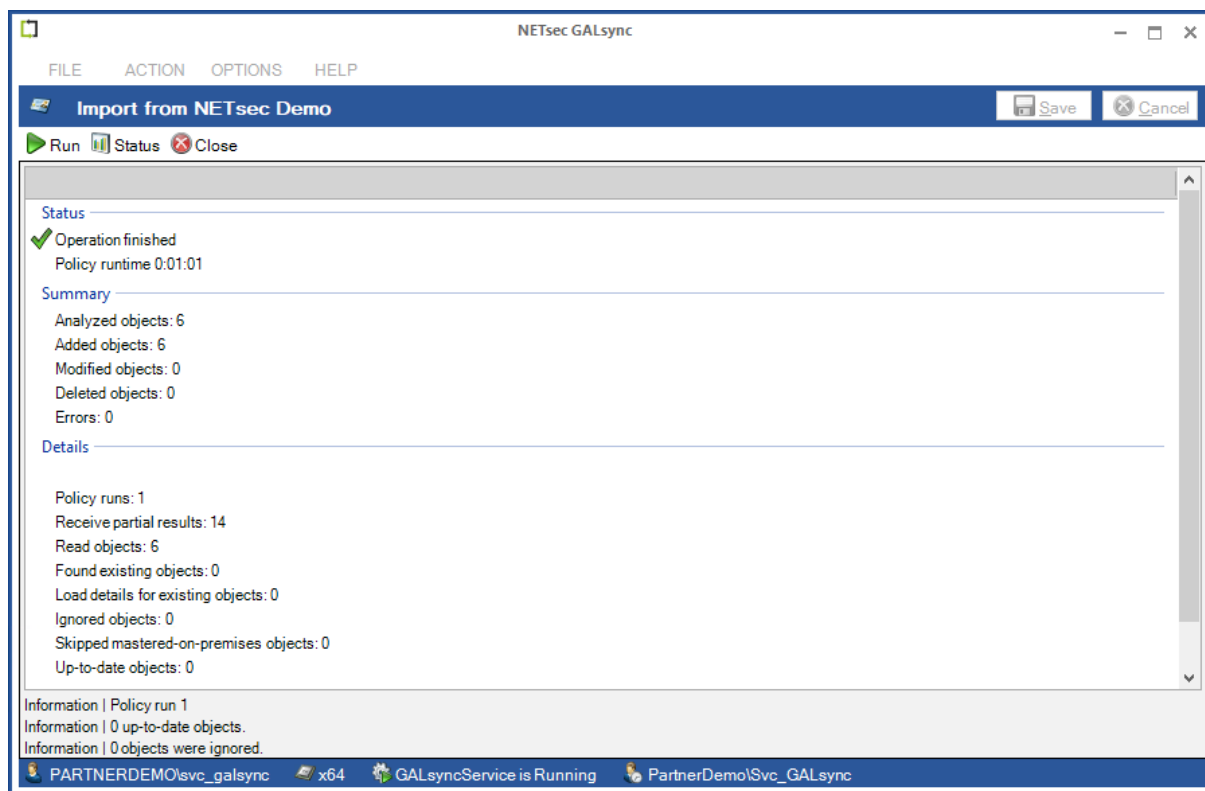
The new policy is accessible by selecting it from either link shown below.



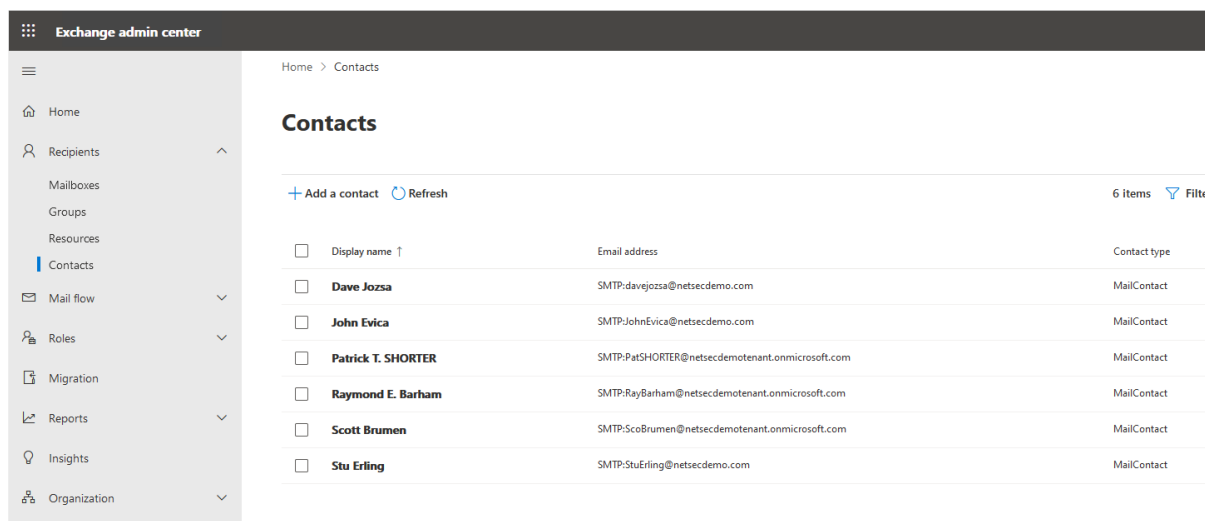
Select the policy node. Then click the **Run** button.



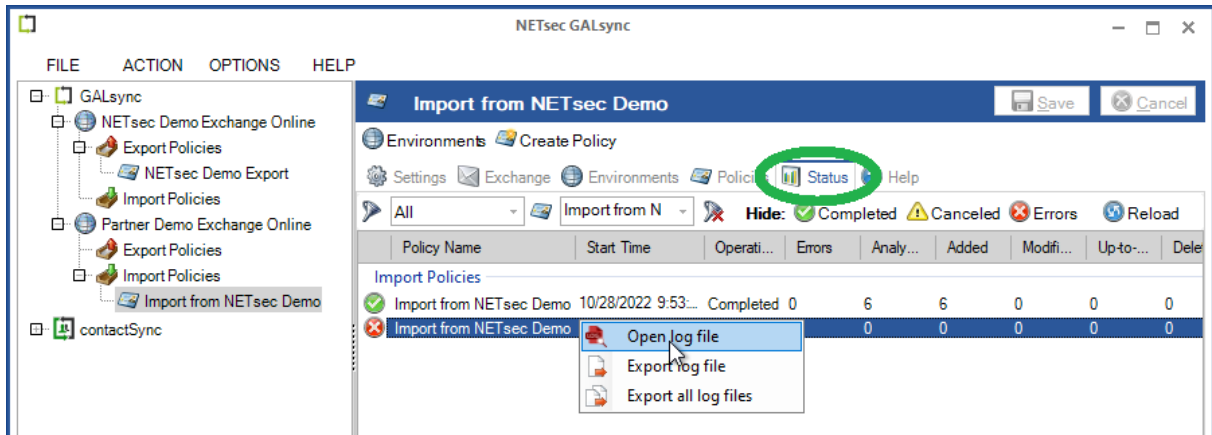
GALsync successfully imported all 6 members of the NETsec Demo Customer Support Security Group into the target tenant (Partner Demo) as contacts.



The import has been verified in the target tenant.



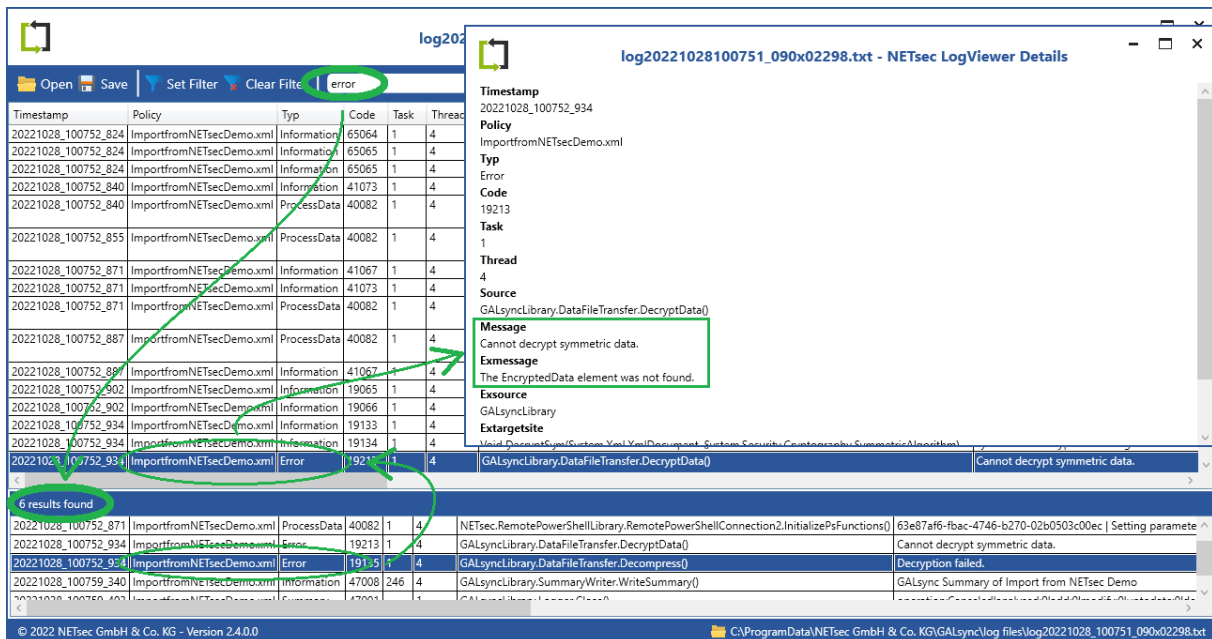
The corresponding log file can be opened by selecting the Status tab, and right-clicking the associated log and selecting **Open log file** from the context menu. This allows you to easily find the error and identify its cause, as shown in the example below.



Searching for the string "error" yields 6 log entries containing this string.

Double-click the line which contains the error. This will highlight the line in the log which contains the details of this log entry.

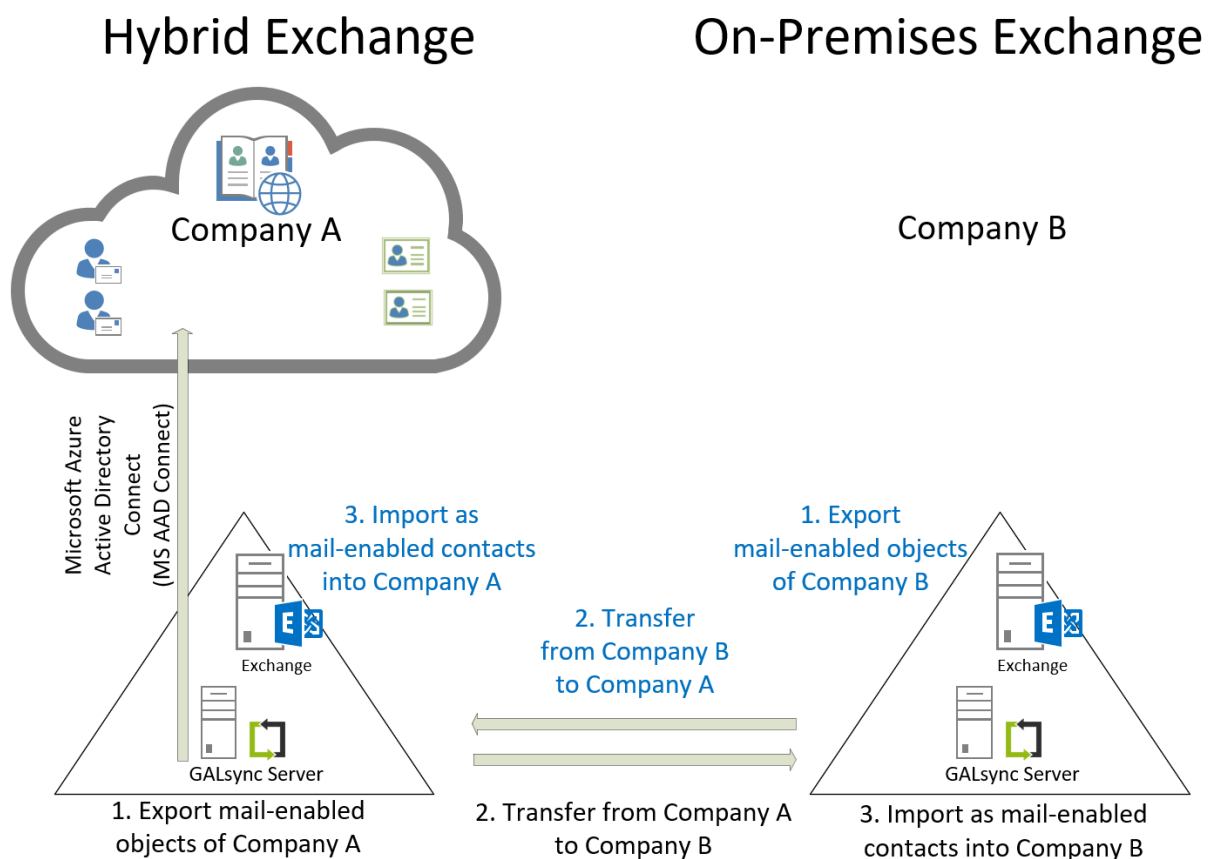
Double-click the highlighted line in the log viewer.



## On-premises Exchange to on-premises Exchange Synchronization

### Synchronizing between different on-premises Exchange environments

If you want directly synchronize between 2 different on-premises Exchange environments, there must be a domain-joined GALsync Server in each of the corresponding Exchange environments.

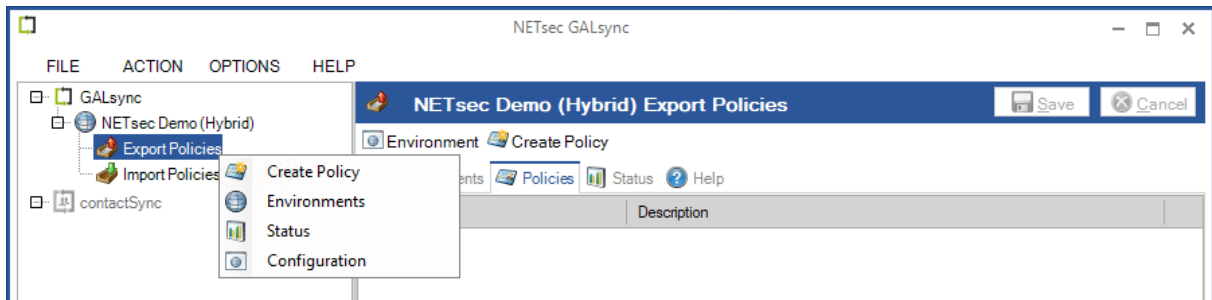


In this scenario the administrator of each on-premises Exchange environment configures an Environment Configuration for their own Exchange environment. The corresponding policies to export and import are configured within the Environment Configuration of the Exchange environment.

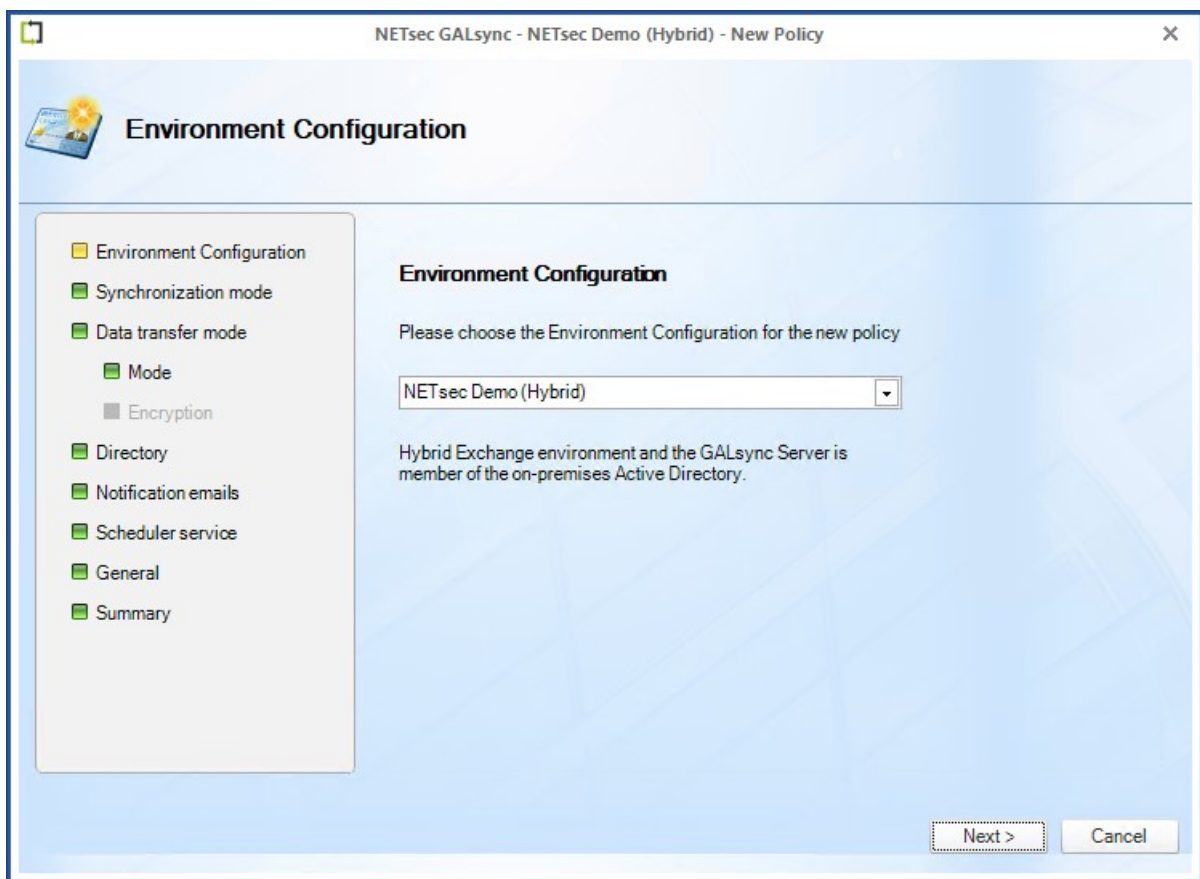
How to configure this scenario is described below in a step-by-step guide:

## Create and Run Export Policy from on-premises Exchange

Right-click the **Export Policies** node under the desired environment from which to export, and select **Create Policy**.



The selected environment is pre-populated.



Since this is a hybrid Exchange environment, the option is presented whether to connect to Exchange On-Premises, and export from Active Directory (preferred), or to export from Exchange Online.

Select the **On-premises Exchange organization of hybrid environment** radio button, then click **Next**.

NETsec GALsync - NETsec Demo - New Policy

## New Export Policy

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - Mode
  - Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

### Synchronization mode

**1. What do you want to do?**

☒ Export directory information (GAL)

☐ Import directory information (GAL)

**2. What kind of environment do you have?**

☒ An on-premises Exchange organization or a hybrid Exchange organization. Export directory information (GAL) from an on-premises Exchange organization or from the on-premises part of a hybrid Exchange organization.

☐ An Office 365 Exchange Online tenant or a hybrid Exchange organization. Export directory information (GAL) from an Office 365 Exchange Online tenant or directly from the Office 365 part of the hybrid Exchange organization.

< Back   Next >   Cancel

Select the **via email – Send directory information by email** radio button, then check the **Encrypt directory information** checkbox

Click **Next**

NETsec GALsync - NETsec Demo - New Policy

### New Export Policy

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - via email
  - Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

#### Data transfer mode

Please choose a type of transfer.

☐ manual  
Export to a file on a local drive of the server.

☒ via email  
Send directory information by email.

☐ via network share  
Store directory information to a network share.

☐ via FTP  
Upload directory information to a FTP server.

☒ Encrypt directory information.

< Back   Next >   Cancel



GALsync will attach the data file to an email. Enter a subject line and the email address of the GALsync account in the target forest. This subject line will need to be configured in the corresponding import policy so GALsync can identify which email contains the data file.

Click **Test** to send an optional test email to verify routing to the target mailbox.

Click **Next**.

NETsec GALsync - NETsec Demo - New Policy

### New Export Policy

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - via email
  - Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

**via email**

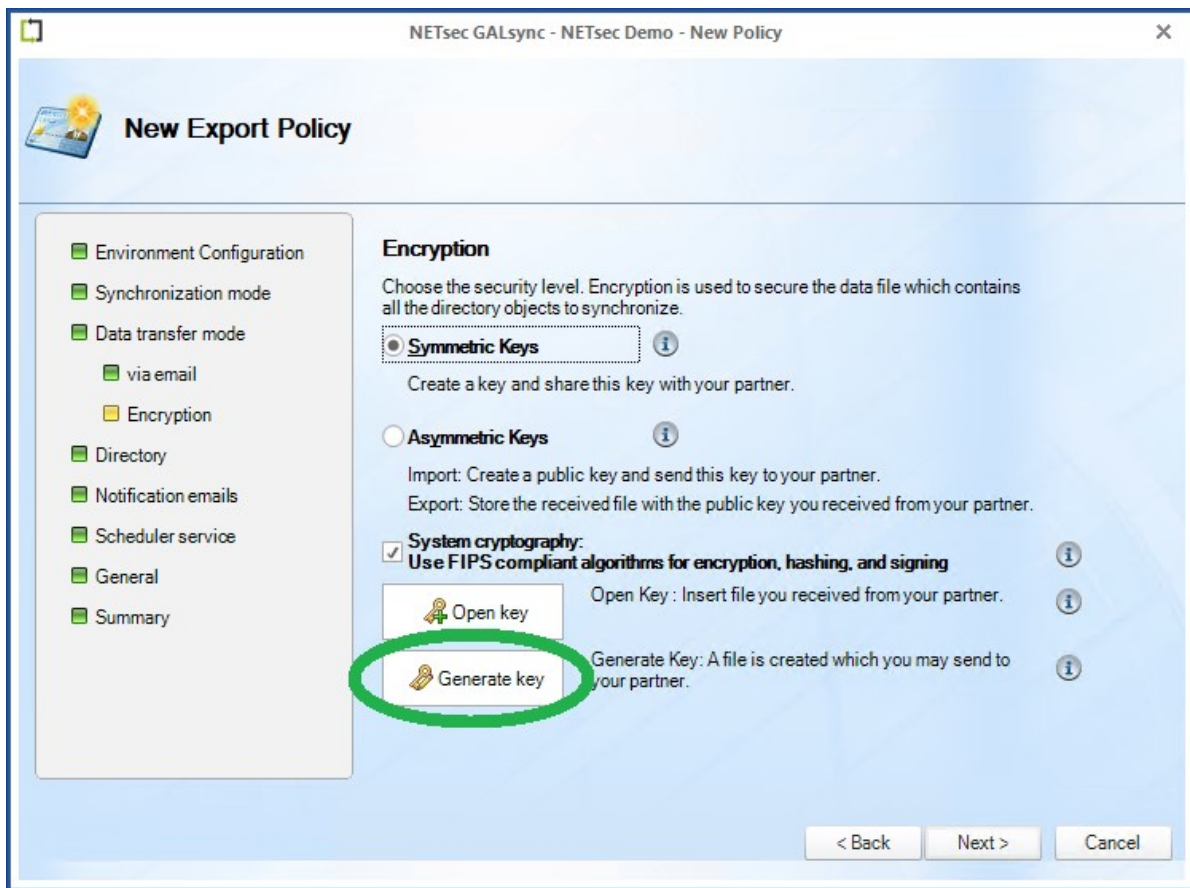
Subject: NETsec Demo Export from On-Prem ⓘ

Send to: svc\_galsync@companydemo.de ⓘ

Test ⓘ

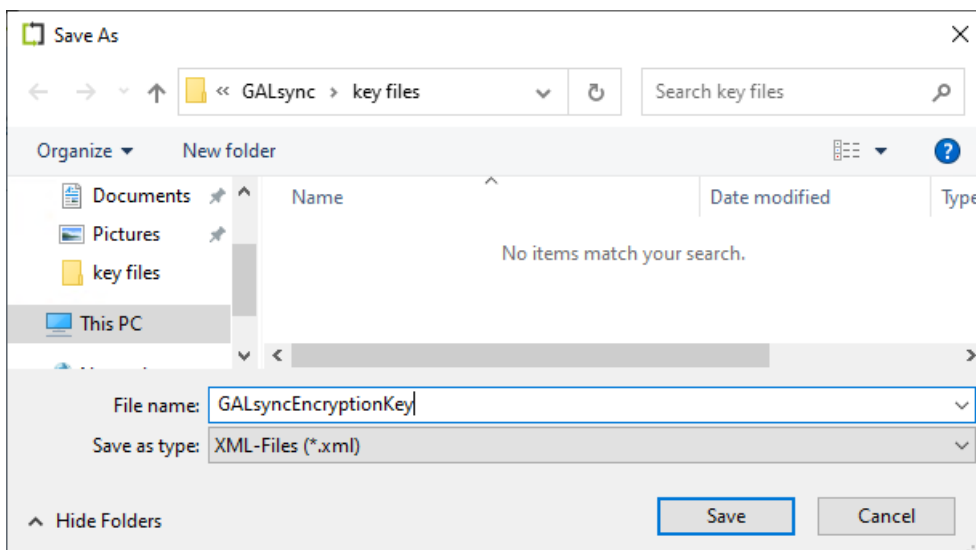
< Back   Next >   Cancel

Select the **Symmetric Keys** radio button, then click **Generate Key**.

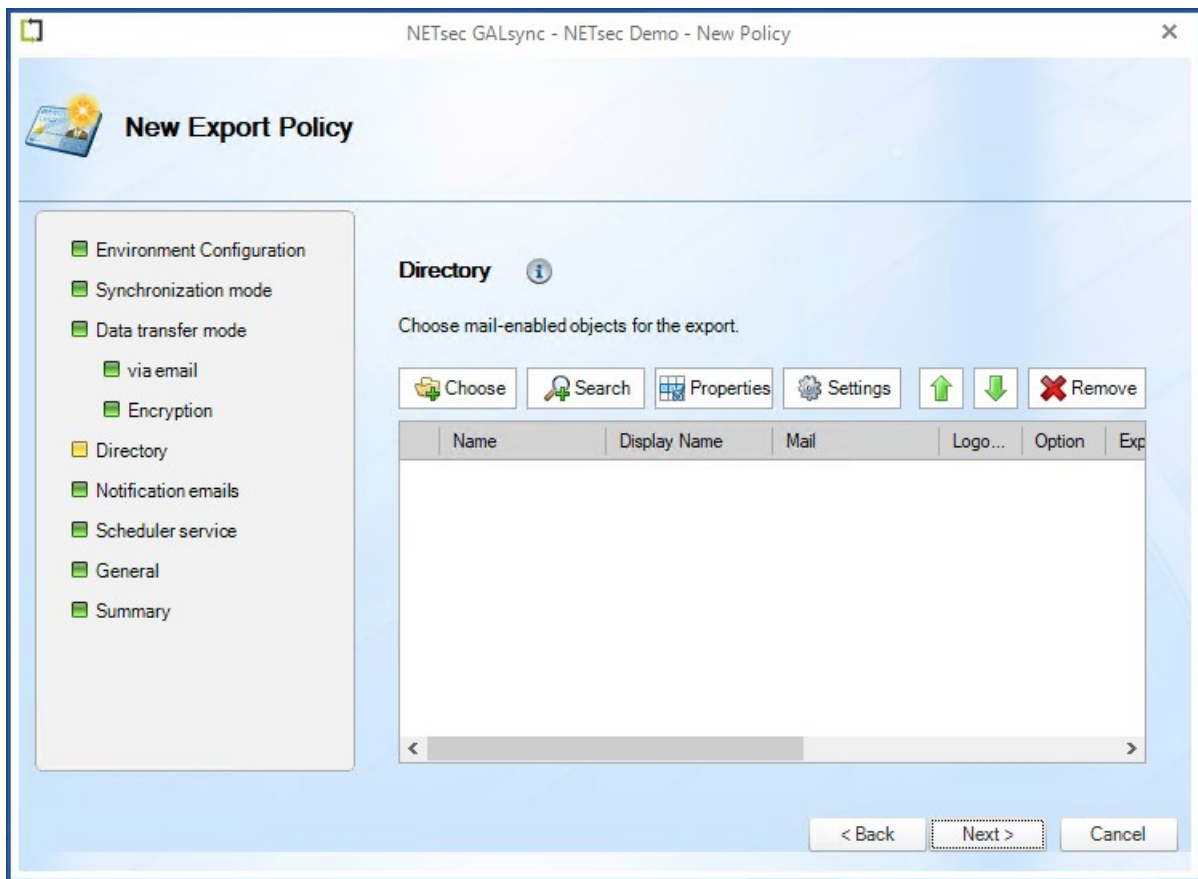


Give the encryption key a file name and save it. The default directory to save it is:

C:\ProgramData\NETsec GmbH & Co. KG\GALsync\key files

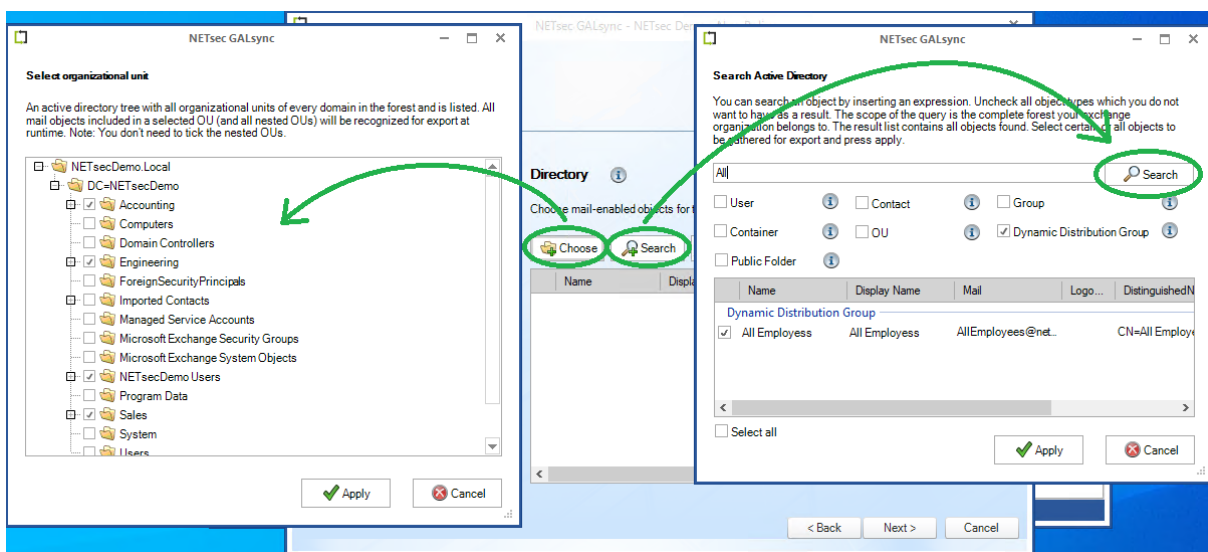


After saving the encryption key, click **Next**. The window below is presented.



There are two ways to select objects to be exported.

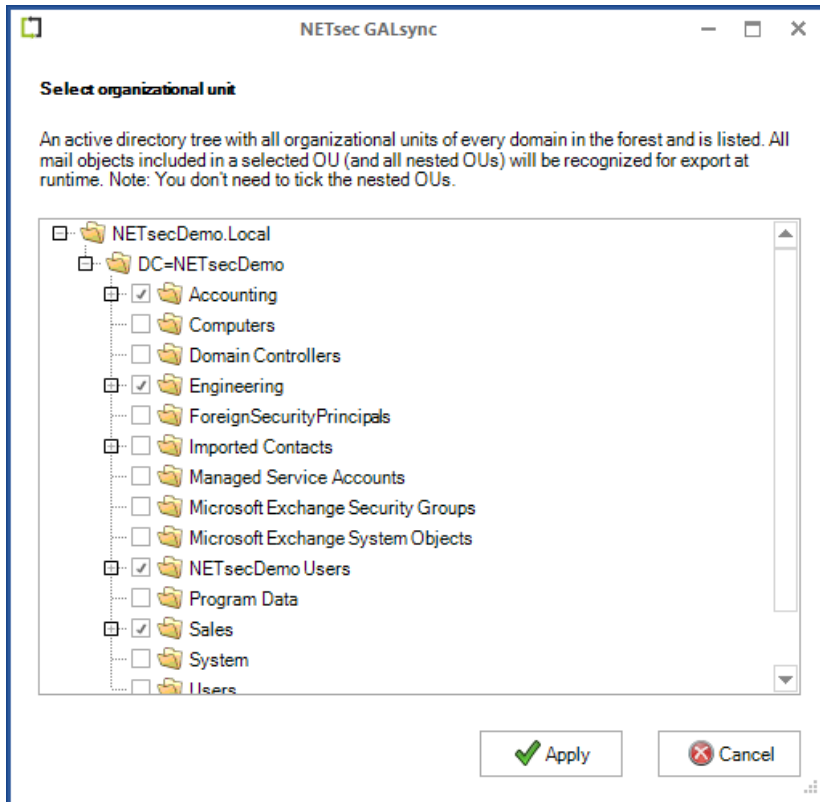
1. Click **Choose** to select objects by OU.
2. Click **Search** to initiate an LDAP query to search for select mail-enabled objects.



Selection by OU:

Select the desired OU(s) which contain the objects to be exported by checking the corresponding checkbox(s)

Click **Apply**



Select the desired option which you would like to apply to your OU selection. If multiple OUs have been selected, the same settings can be applied to all OUs by checking the **Setting for all OUs** checkbox.

Select the **Exportable RecipientTypeDetails** tab

The screenshot shows the 'GALsync' application window with the 'Accounting' folder selected. The 'OU Options' tab is active, and the 'Exportable RecipientTypeDetails' sub-tab is selected, highlighted with a green circle. Below the tabs, there are five radio buttons and two checkboxes, each with an information icon to its right:

- ☐ Only this OU
- ☐ Only Sub-OUs
- ☒ OU + Sub-OUs
- ☐ Include group memberships
- ☐ Include nested groups + memberships

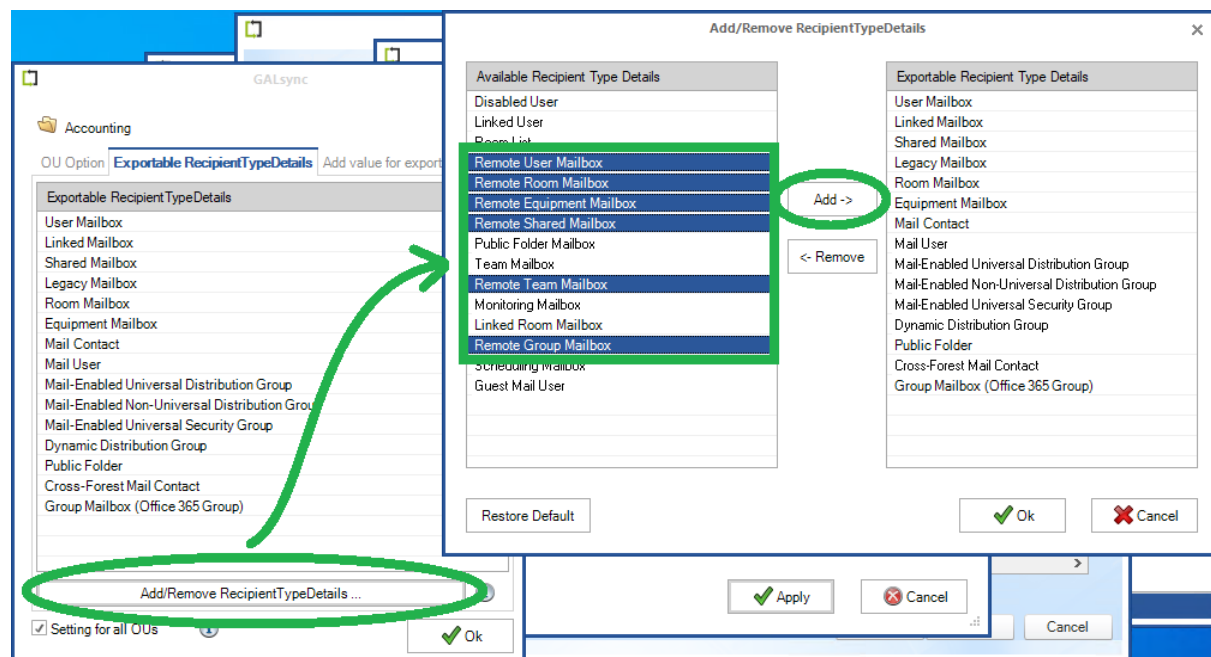
At the bottom left, the checkbox 'Setting for all OUs' is checked and circled in green. At the bottom right, there is an 'Ok' button with a green checkmark icon.

The dialog window displays the default exportable recipient type details values (msExchRecipientTypeDetails AD property) which are to be exported.

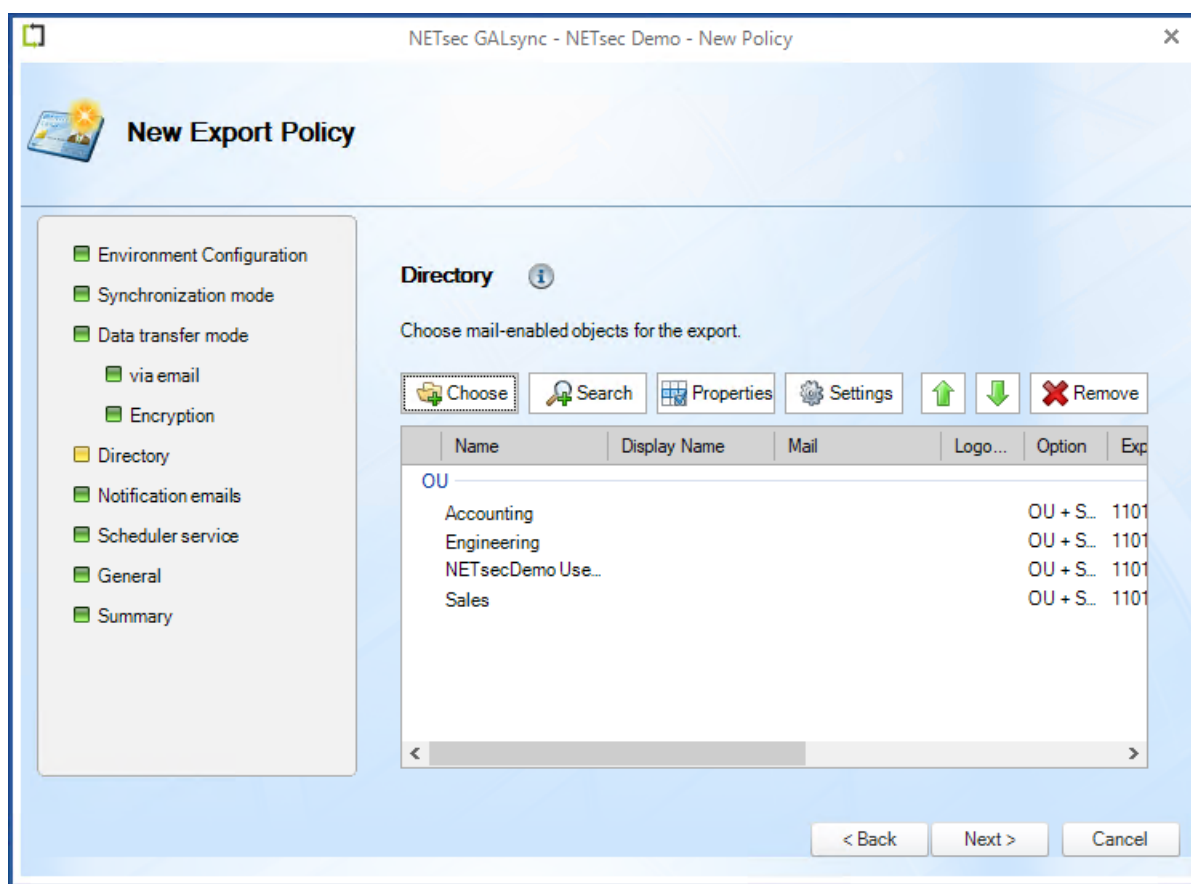
Click the **Add/Remove RecipientTypeDetails** button to modify your selection.

*Important: By default, remote mailboxes are not exported from on-premises Exchange. They must be explicitly added as shown below.*

Click **OK**.



Click **Next**.



An optional status notification email can be configured to be sent each time the policy runs, which contains a brief summary of the export operation. It can be configured to **Send only on error**, when checked.

Click **Test** to send an optional test email to the specified recipient.

Click **Next**.

NETsec GALsync - NETsec Demo - New Policy

### New Export Policy

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - via email
- Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

#### Status notification emails

☒ Send Summary ⓘ

Subject: GALsync Summary - NETsec Demo Export (On-Prem) ⓘ

Send to: svc\_galsync@netsecdemo.com ⓘ

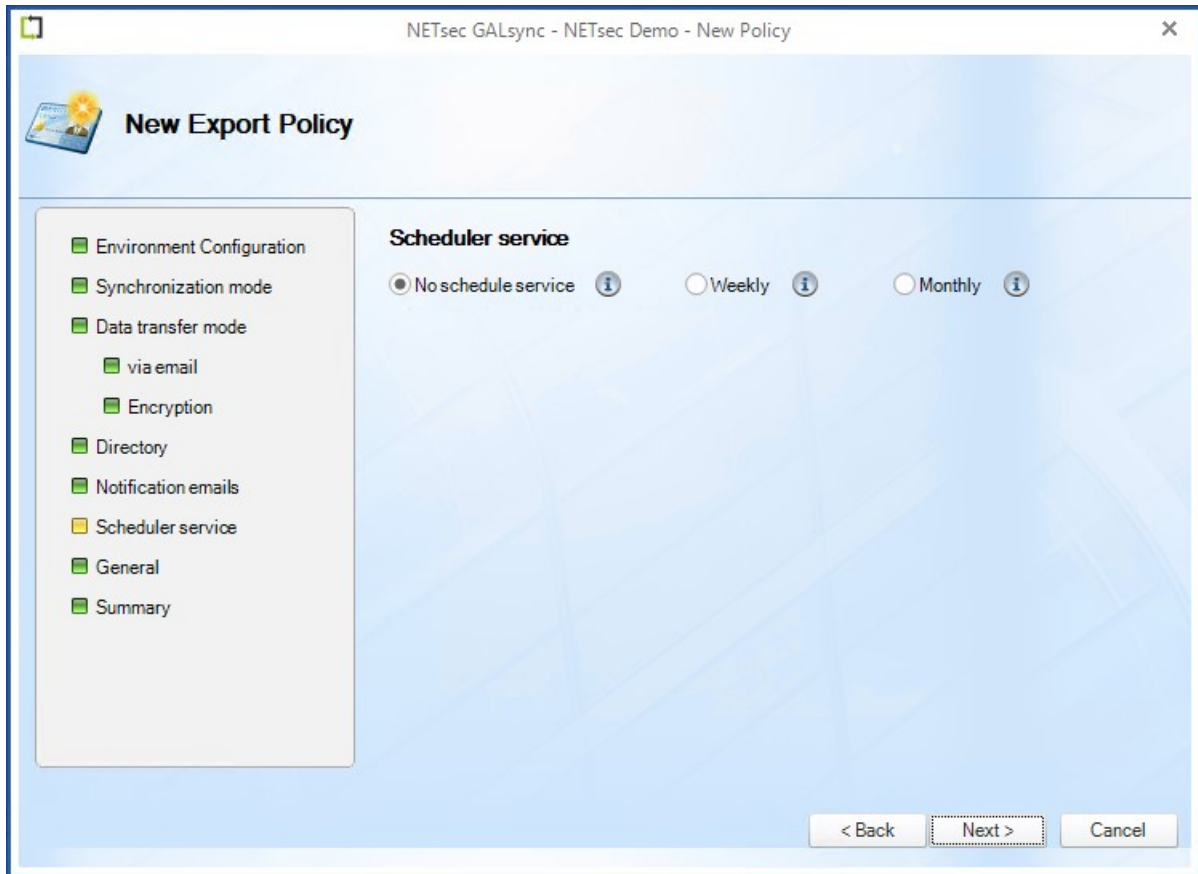
ⓘ ☒ Send only on error ⓘ

< Back   Next >   Cancel



GALsync can be scheduled to run at regular intervals. We recommend the policy is manually run before any schedules are set. After the synchronization has completed successfully, you can go back and set it to run on the desired schedule.

Click **Next**.




Enter a policy name and optional description, then click **Next**.


NETsec GALsync - NETsec Demo - New Policy


### New Export Policy

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - via email
  - Encryption
- Directory
- Notification emails
- Scheduler service
- General**
- Summary

#### General

Policy Name   
NETsec Demo Export (On-Prem)

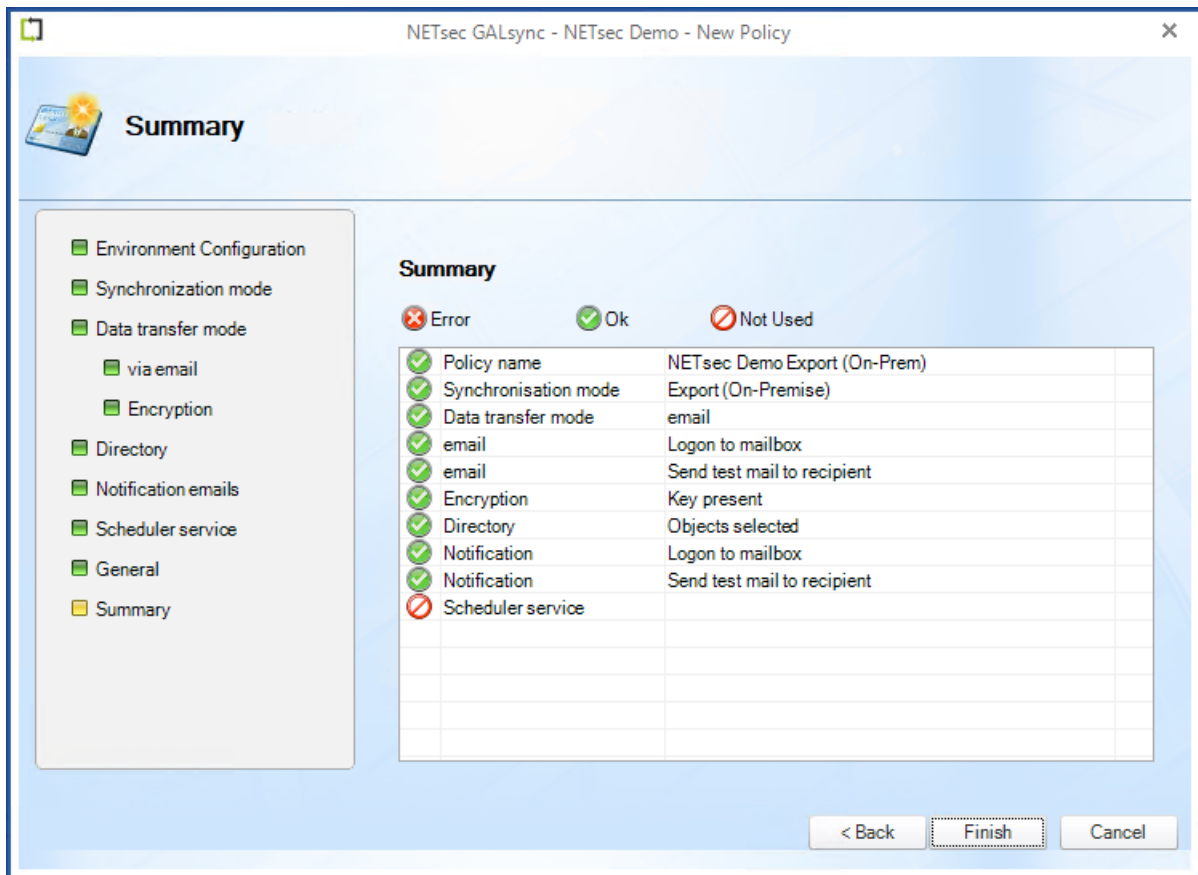
Description   
Export of user objects from NETsecDemo.local Hybrid Exchange environment's On-Prem Active Directory

Environment Configuration   
NETsec Demo

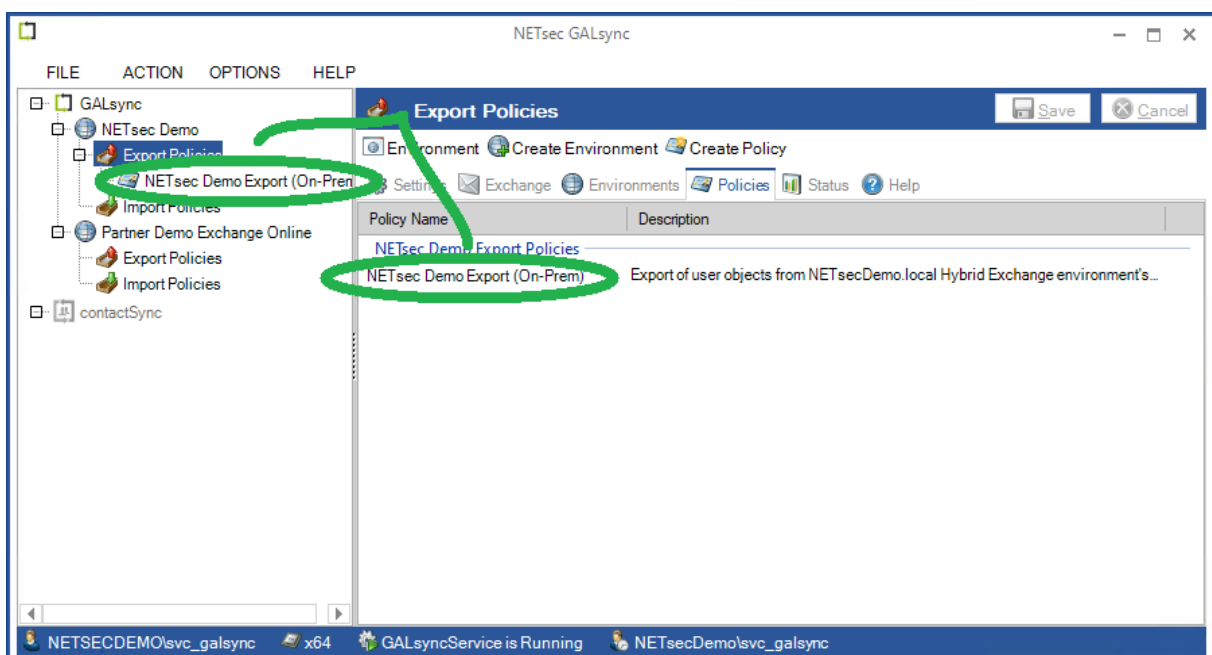
< Back   Next >   Cancel

To ensure your settings have been properly configured GALsync will check your policy settings and notify you of any detected errors.

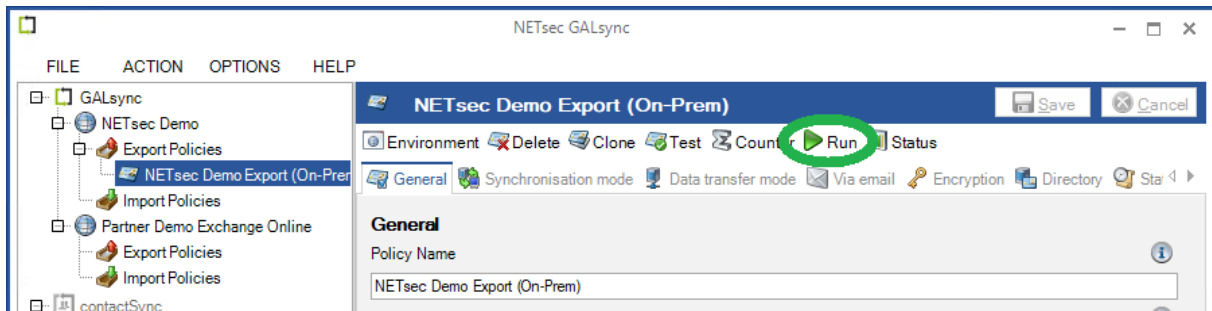
Click **Finish** to complete the wizard.



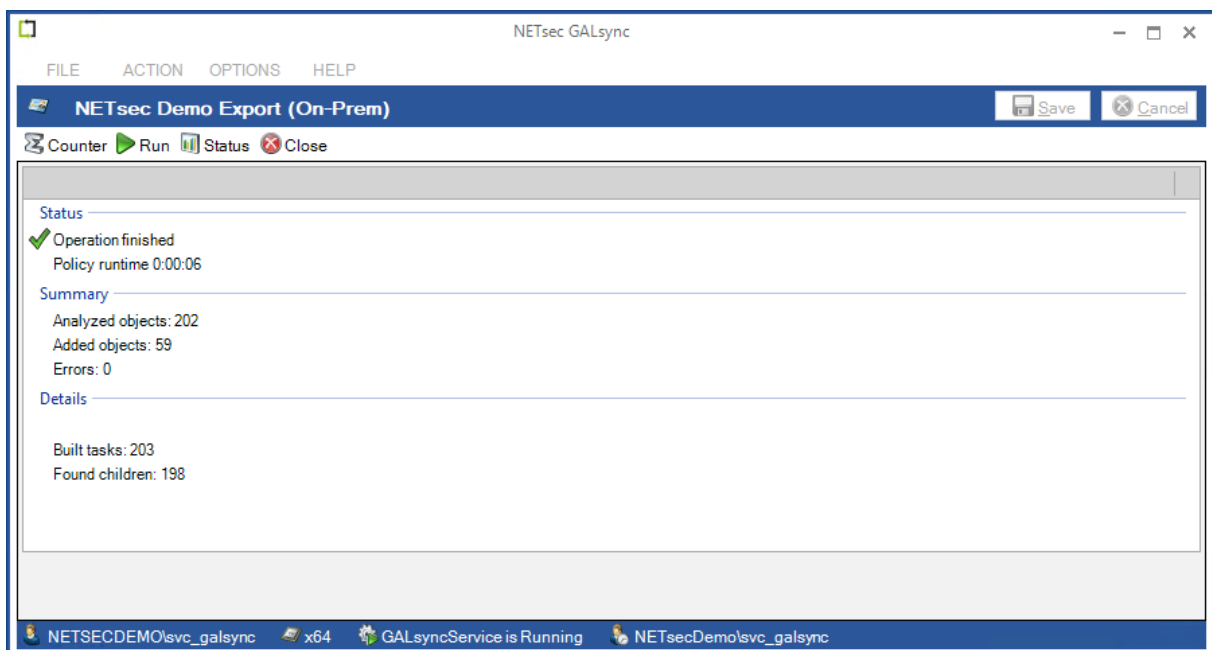
Select the new policy from either node shown below.



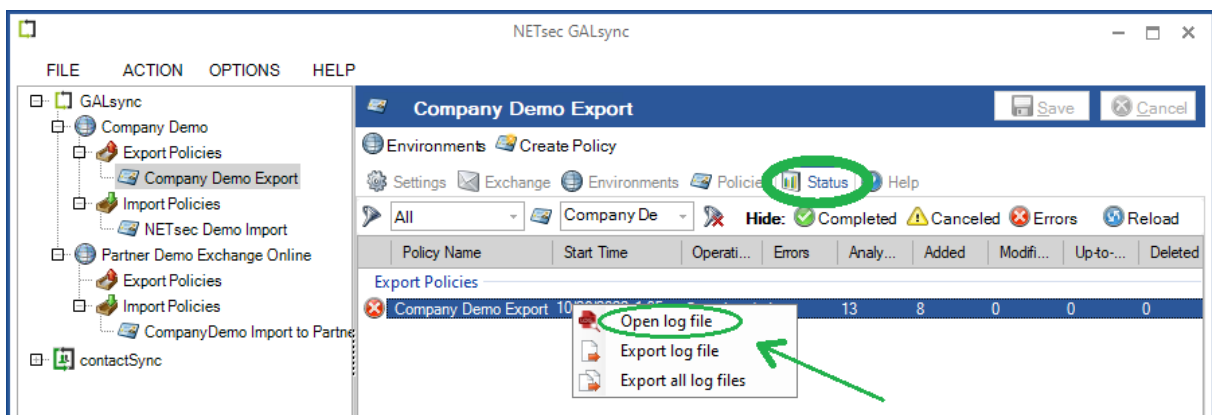
Click **Run**



Export completed successfully



The corresponding log file can be opened by selecting the Status tab, and right-clicking the associated log and selecting **Open log file** from the context menu. This allows you to easily find the error and identify its cause, as shown in the example below.



Searching for the string "error" yields 5 log entries containing this string.

Double-click the line which contains the error. This will highlight the line in the log which contains the details of this log entry.

Double-click the highlighted line in the log viewer.

The screenshot shows the NETSec LogViewer interface. The main window displays a list of log entries with columns: Timestamp, Policy, Type, Code, Task, and Thread. A search filter 'error' is applied, and 5 results are found. The selected entry is highlighted in blue. The details pane on the right shows the message: 'Error getting Exchange Web Services for on-premises Exchange: Resolving autodiscover url failed. You may want to check selected mailaddress svc\_galsync@CompanyDemo.de. Please check permissions and credentials for in the ews credentials settings, too. (ExMessage: The Autodiscover service couldn't be located.)'.

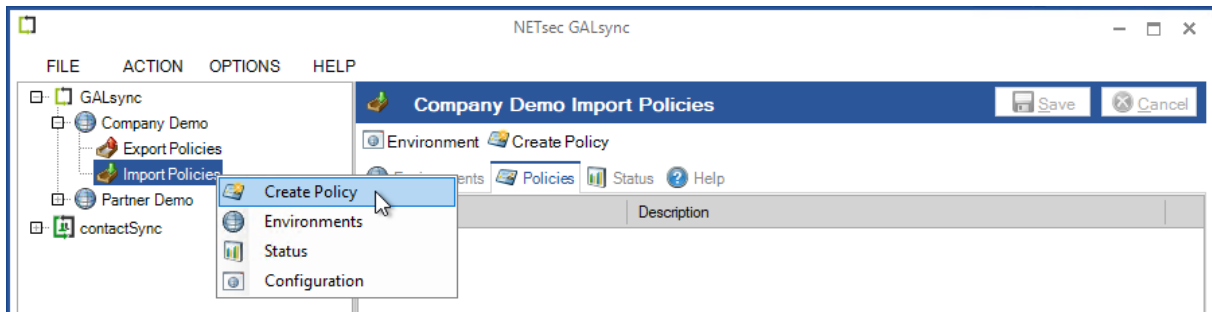
Timestamp	Policy	Type	Code	Task	Thread
20221026_130503_296	CompanyDemoExport1.xml	ProcessData	22005	45	21
20221026_130503_296	CompanyDemoExport1.xml	ProcessData	23001	45	21
20221026_130503_312	CompanyDemoExport1.xml	ProcessData	23002	44	11
20221026_130503_312	CompanyDemoExport1.xml	ProcessData	23002	45	21
20221026_130503_312	CompanyDemoExport1.xml	ProcessData	24008	44	11
20221026_130503_312	CompanyDemoExport1.xml	ProcessData	24008	45	21
20221026_130503_343	CompanyDemoExport1.xml	ProcessData	24011	45	21
20221026_130503_374	CompanyDemoExport1.xml	ProcessData	24011	44	11
20221026_130503_374	CompanyDemoExport1.xml	ProcessData	22003	51	11
20221026_130503_374	CompanyDemoExport1.xml	ProcessData	22005	52	11
20221026_130503_374	CompanyDemoExport1.xml	ProcessData	23001	52	11
20221026_130503_374	CompanyDemoExport1.xml	ProcessData	23002	52	11
20221026_130503_374	CompanyDemoExport1.xml	ProcessData	23040	52	11
20221026_130503_374	CompanyDemoExport1.xml	Information	19004	54	11
20221026_130503_374	CompanyDemoExport1.xml	Information	19001	54	11
20221026_130503_374	CompanyDemoExport1.xml	Information	19121	54	11
20221026_130503_390	CompanyDemoExport1.xml	Information	19123	54	11
20221026_130503_421	CompanyDemoExport1.xml	Information	12090	54	11
20221026_130503_421	CompanyDemoExport1.xml	Error	12078	54	11

5 results found

Timestamp	Policy	Type	Code	Task	Thread	Message
20221026_130503_468	CompanyDemoExport1.xml	Error	12078	54	11	Error getting Exchange Web Services for on-premises Exchange: Resolving autodiscover url failed. You may want to check selected mailaddress svc_galsync@CompanyDemo.de. Please check permissions and credentials for in the ews credentials settings, too. (ExMessage: The Autodiscover service couldn't be located.)
20221026_130503_468	CompanyDemoExport1.xml	Error	12111	54	11	Please check the configuration!
20221026_130503_468	CompanyDemoExport1.xml	Error	19044	54	11	Error connecting to Exchange server.
20221026_130503_468	CompanyDemoExport1.xml	Information	47008	54	11	GALsync Summary of Company Demo Export
20221026_130503_468	CompanyDemoExport1.xml	Information	47009	54	11	GALsync Summary of Company Demo Export

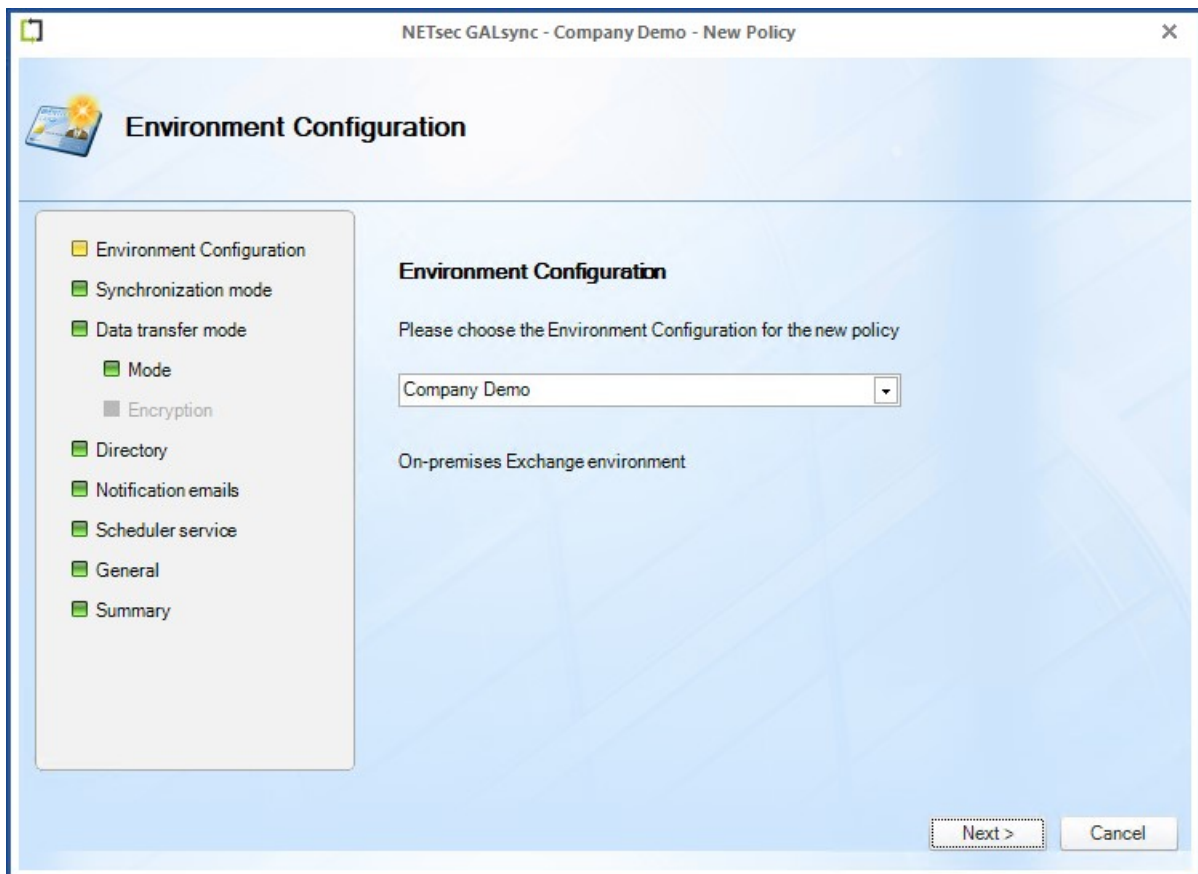
## Create and Run Import Policy for on-premises Exchange

Right-click the **Import Policies** node under the Environment you would like to import to, then select **Create Policy**.



The environment is preselected, if it is not, reselect it from the dropdown.

Click **Next**.



Import directory information has been preselected, and since this is an on-premises Exchange environment, this option has also been preselected.

Click **Next**.

NETsec GALsync - Company Demo - New Policy

## New Import Policy

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - Mode
  - Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

### Synchronization mode

**1. What do you want to do?**

☐ Export directory information (GAL) i

☒ Import directory information (GAL) i

**2. What kind of environment do you have?**

☒ An on-premises Exchange organization or a hybrid Exchange organization.  
Import directory information (GAL) to an on-premises Exchange organization or to the on-premises part of a hybrid Exchange organization. i

☐ An Office 365 Exchange Online tenant or a hybrid Exchange organization.  
Import directory information (GAL) to an Office 365 Exchange Online tenant.  
The Office 365 Exchange Online tenant can be part of a hybrid Exchange organization. i

< Back   Next >   Cancel

Select the **via email – Receive directory information from email** radio button, then check the **Decrypt directory information** checkbox.

Click **Next**.

NETsec GALsync - Company Demo - New Policy

### New Import Policy

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - via email
- Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

#### Data transfer mode

Please choose a type of transfer.

☐ manual  
Import from a file on a local drive of the server.

☒ via email  
Receive directory information from email.

☐ via network share  
Receive directory information from a network share.

☐ via FTP  
Download directory information from a FTP server.

☒ Decrypt directory information.

< Back   Next >   Cancel



Enter the subject line which had been configured in the corresponding export policy. Connectivity to the GALsync mailbox can be validated by clicking the **Test** button.

Click **Next**.

NETsec GALsync - Company Demo - New Policy

### New Import Policy

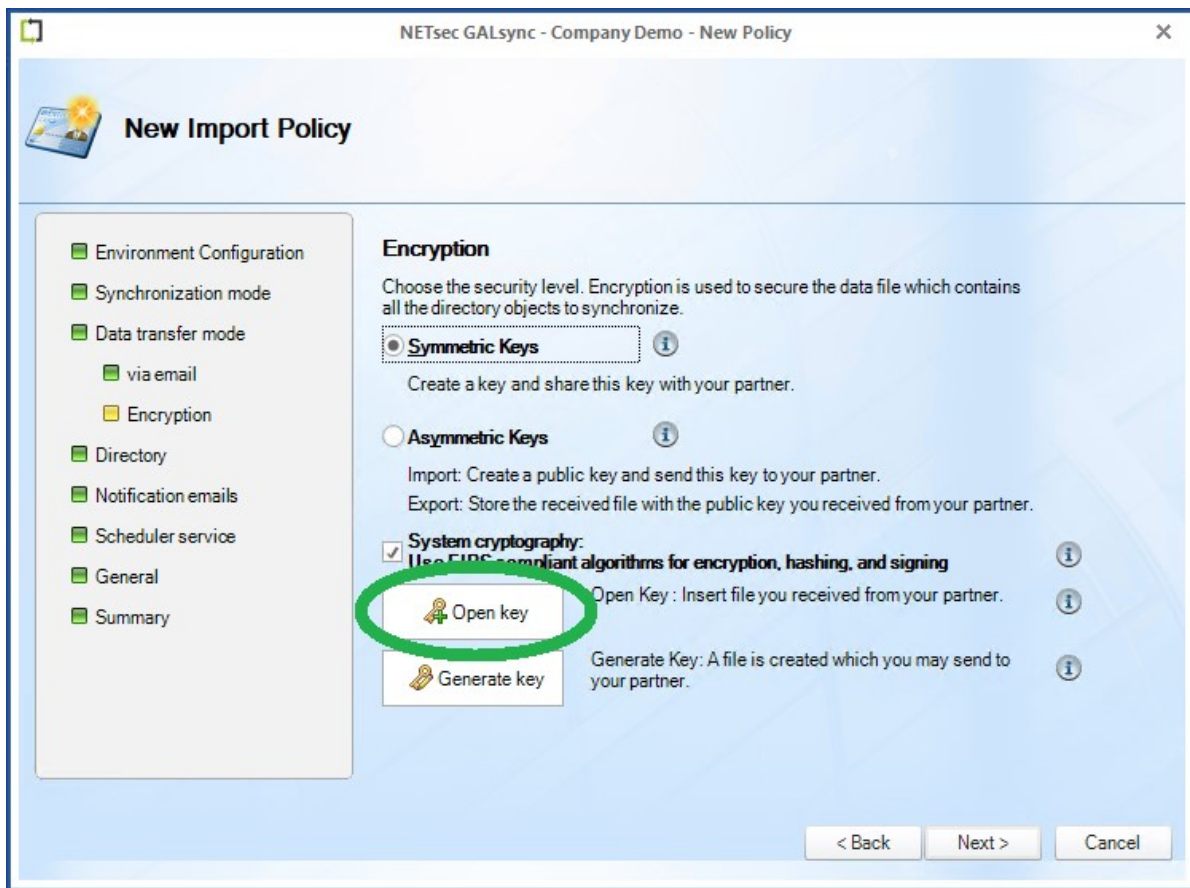
- Environment Configuration
- Synchronization mode
- Data transfer mode
  - via email
- Encryption
- Directory
- Notification emails
- Scheduler service
- General
- Summary

**via email**

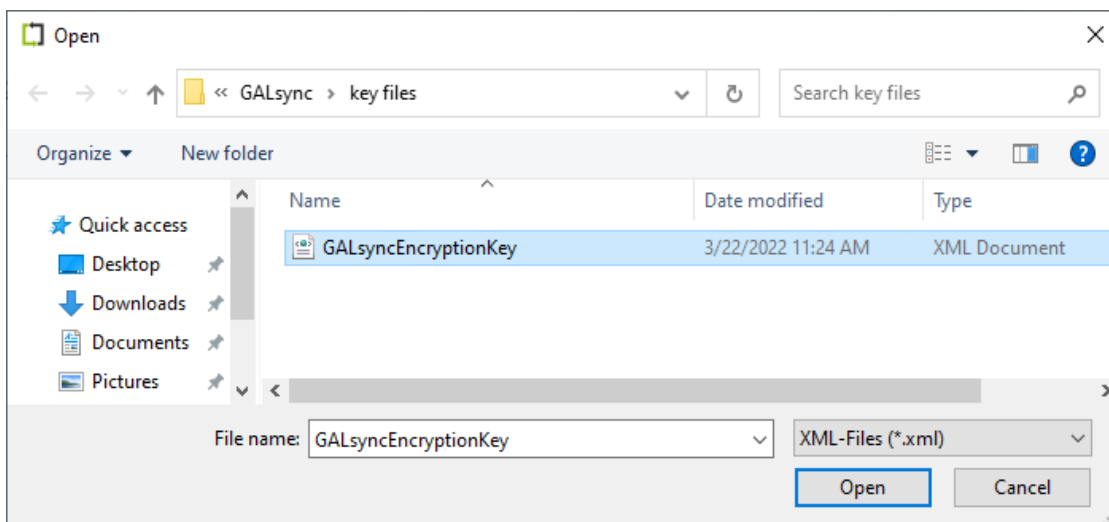
Filter: Subject

< Back   Next >   Cancel

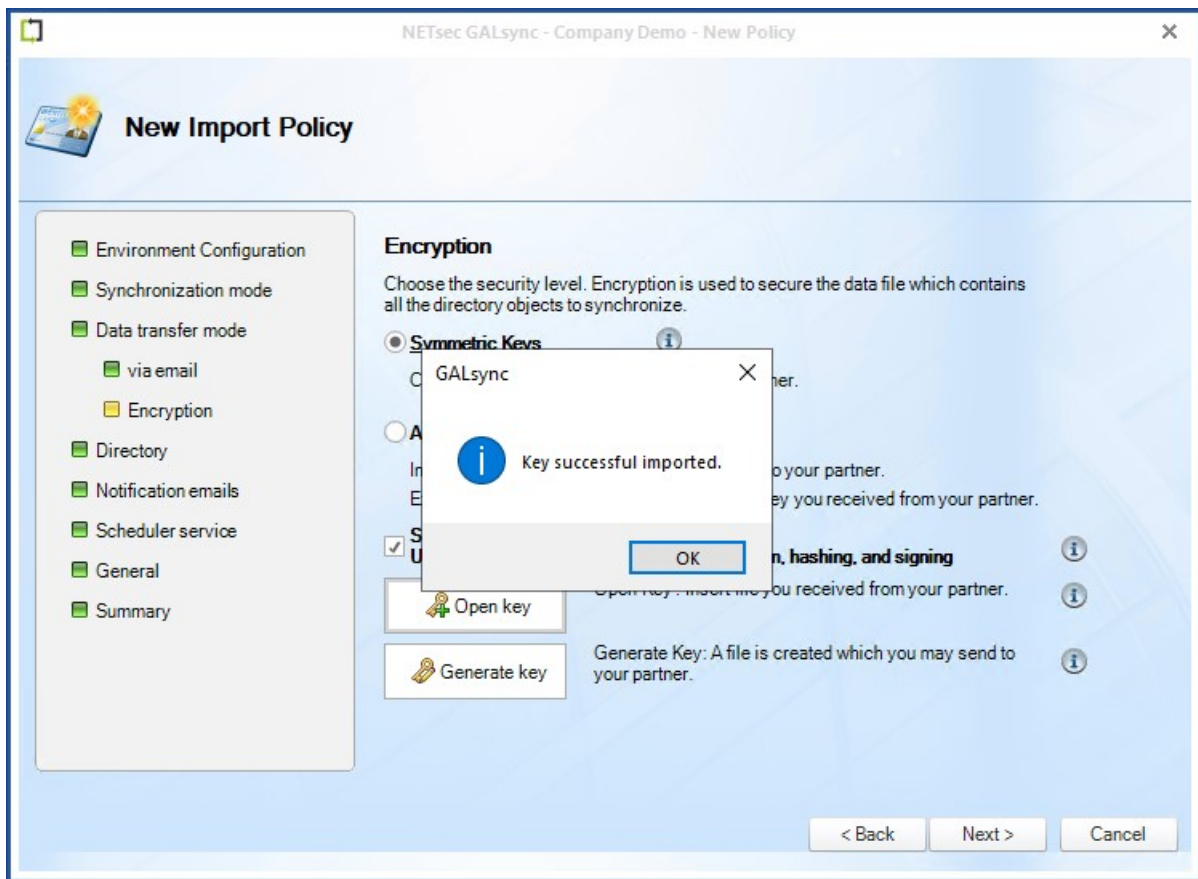
Click **Open key**.



Then select the encryption/decryption key to be used to decrypt the data file.



Key successfully imported. Click **OK**, then **Next**



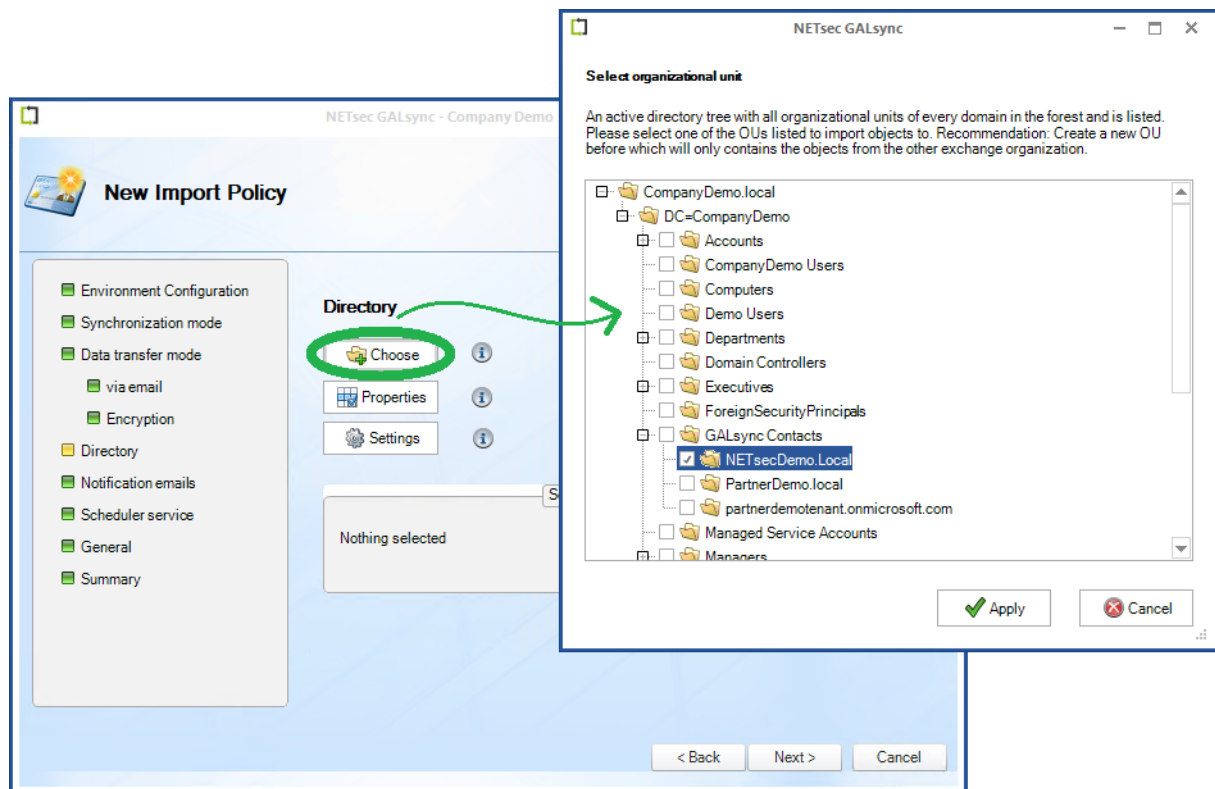
Please note, that the on-premises GALsync service account needs the permission to create, modify and delete objects and their attributes below your defined Import-OU's for synchronizing into an on-premises Exchange environment.

Please take a look at the chapter

### Active Directory Permission for the Import OU (on-premises).

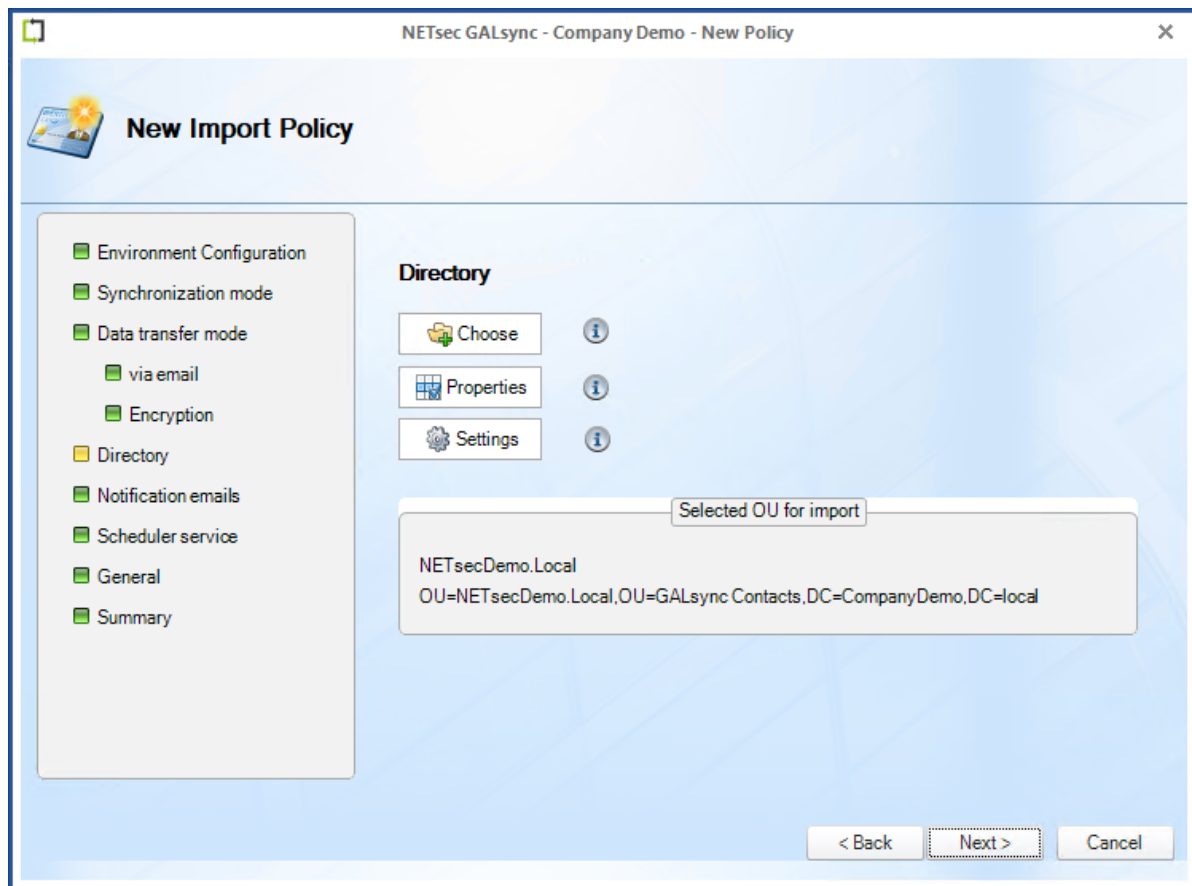
Click **Choose**, which opens an Active Directory tree. Select the target OU which will receive the imported contacts.

*Important: Please ensure the necessary permissions have been granted to the GALsync Service account for the import OU*



Click **Apply**.

Ensure the selected OU is displayed, then click **Next**.



An optional status notification email can be configured to be sent each time the policy runs, which contains a brief summary of the export operation. It can be configured to **Send only on error** as the checkbox suggests, when checked.

Click **Test** to send an optional test email to the specified recipient.

Click **Next**.

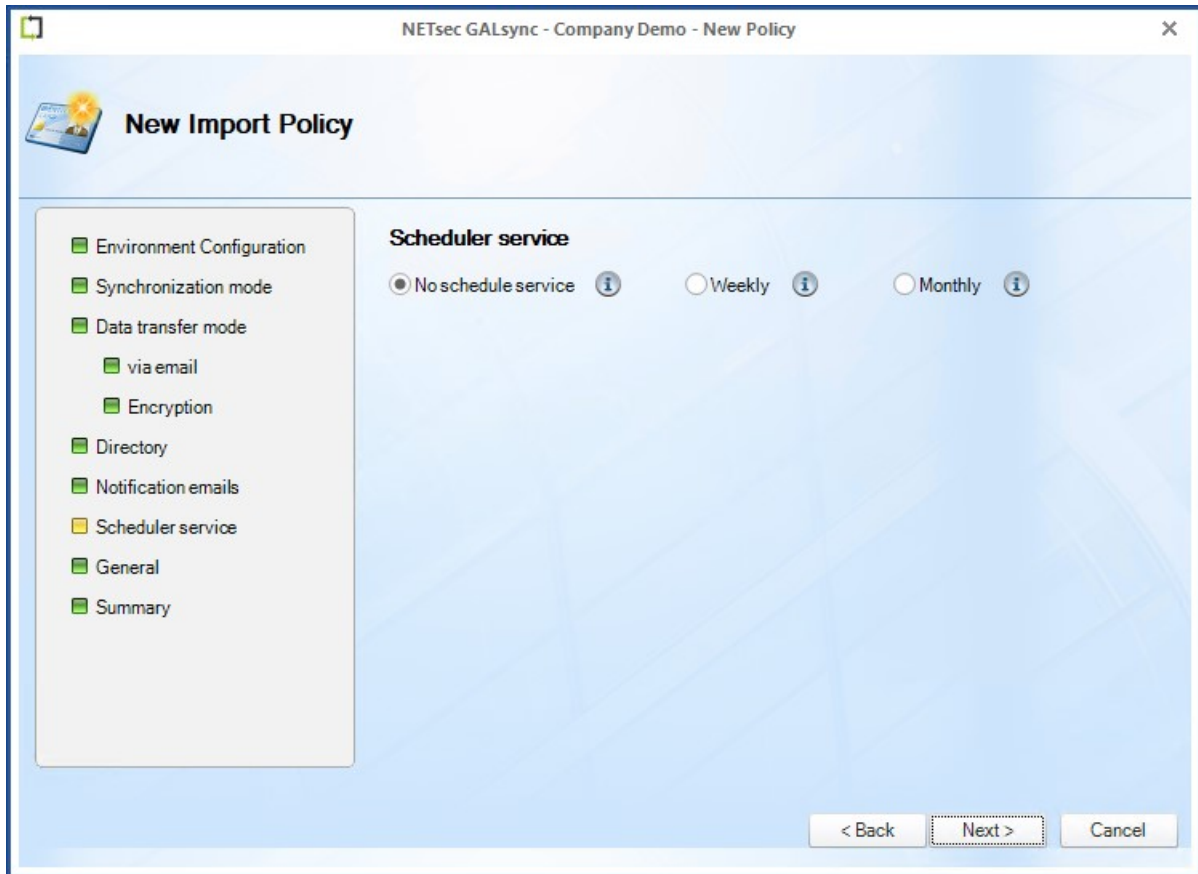
The screenshot shows the 'New Import Policy' window in the NETsec GALsync application. The window title is 'NETsec GALsync - Company Demo - New Policy'. The sidebar on the left contains the following options: Environment Configuration, Synchronization mode, Data transfer mode (with a sub-option 'via email'), Encryption, Directory, Notification emails (highlighted in yellow), Scheduler service, General, and Summary. The main area is titled 'Status notification emails' and contains the following fields and controls:

- ☒ Send Summary (with an information icon)
- Subject: GALsync Summary - NETsec Demo Import (with an information icon)
- Send to: administrator@companydemo.de (with an information icon)
- Test button (with an information icon)
- ☒ Send only on error (with an information icon)

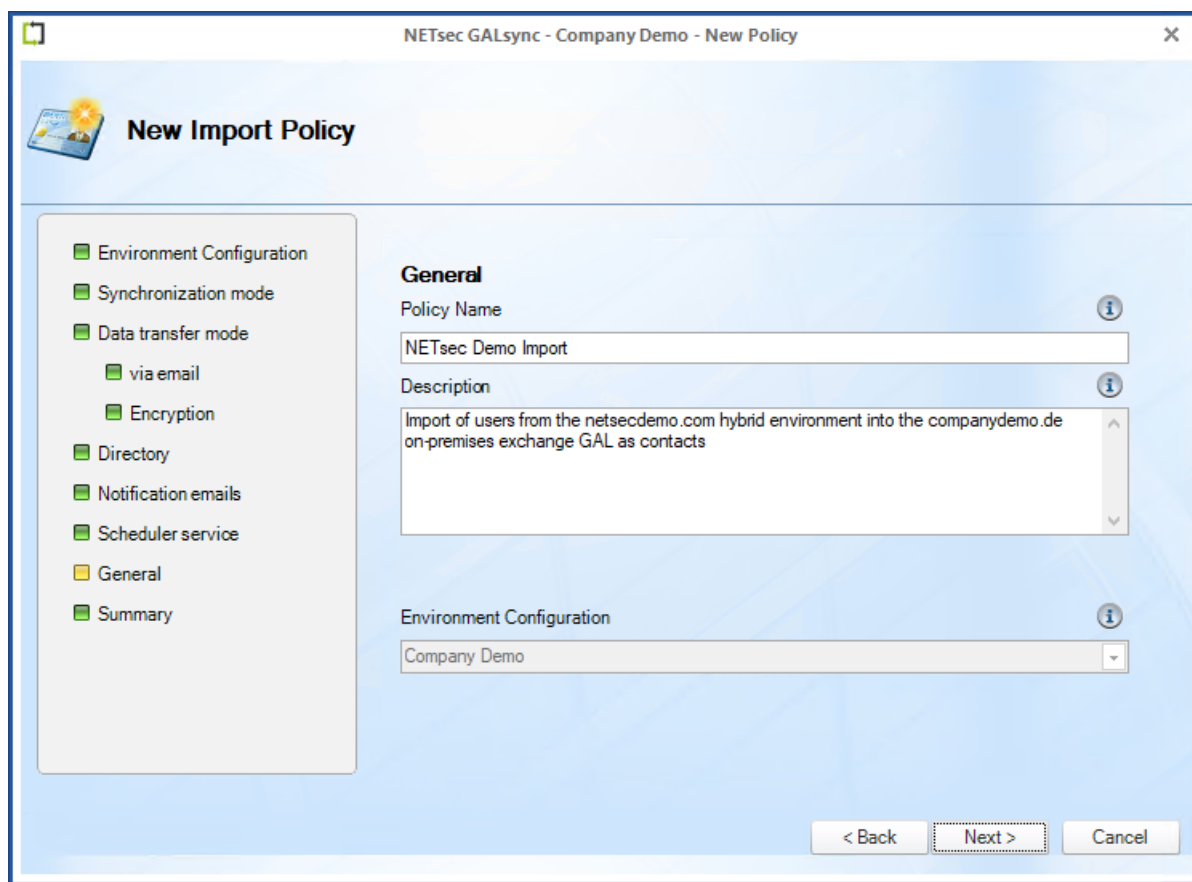
At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

GALsync can be scheduled to run at regular intervals. We recommend the policy is manually run before any schedules are set. After the synchronization has completed successfully, you can go back and set it to run on the desired schedule.

Click **Next**.



Add a policy name and optional description, then click **Next**.



The screenshot shows the 'New Import Policy' window in the 'NETsec GALsync - Company Demo' application. The window has a title bar with the application name and a close button. The main area is divided into a sidebar on the left and a main content area on the right.

**Sidebar (Left):**

- Environment Configuration
- Synchronization mode
- Data transfer mode
  - via email
- Encryption
- Directory
- Notification emails
- Scheduler service
- General (highlighted)
- Summary

**Main Content Area (Right):**

**General**

Policy Name:

Description:

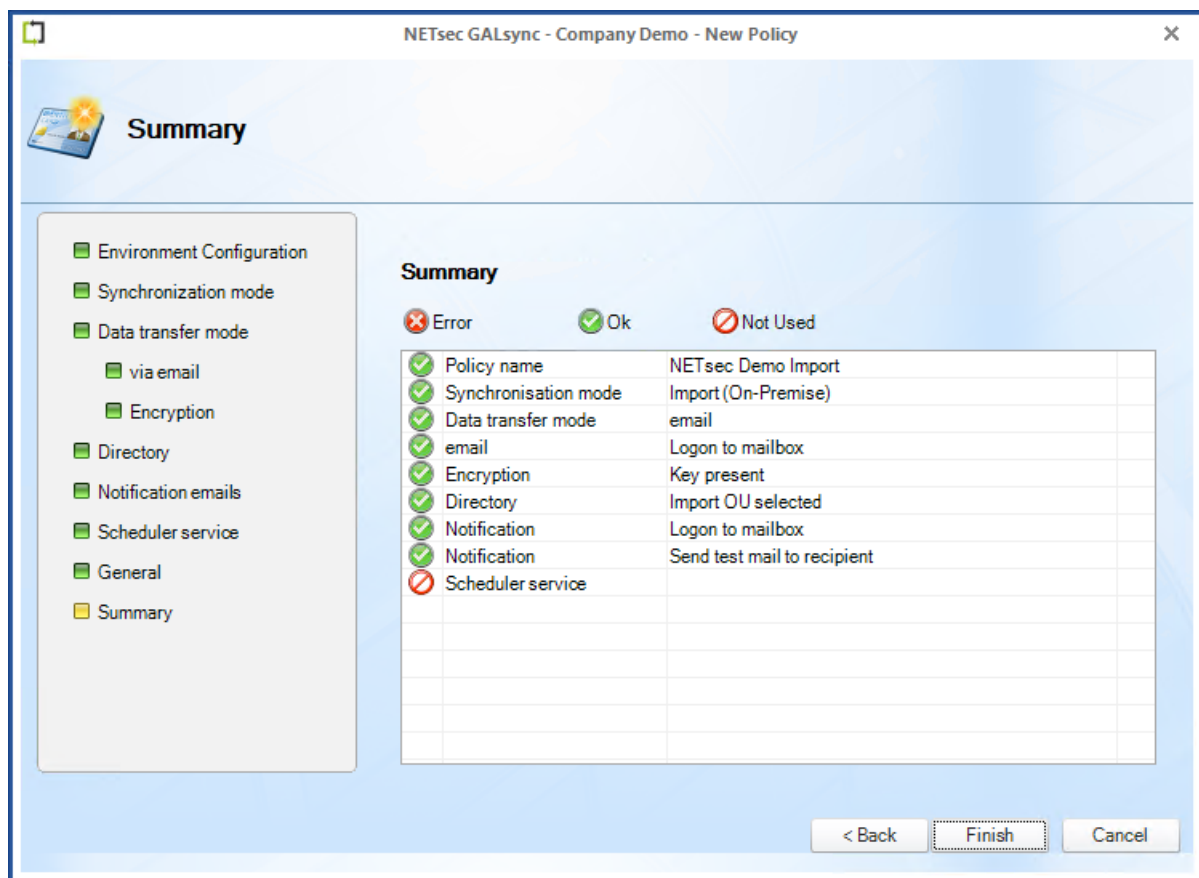
Environment Configuration:

At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

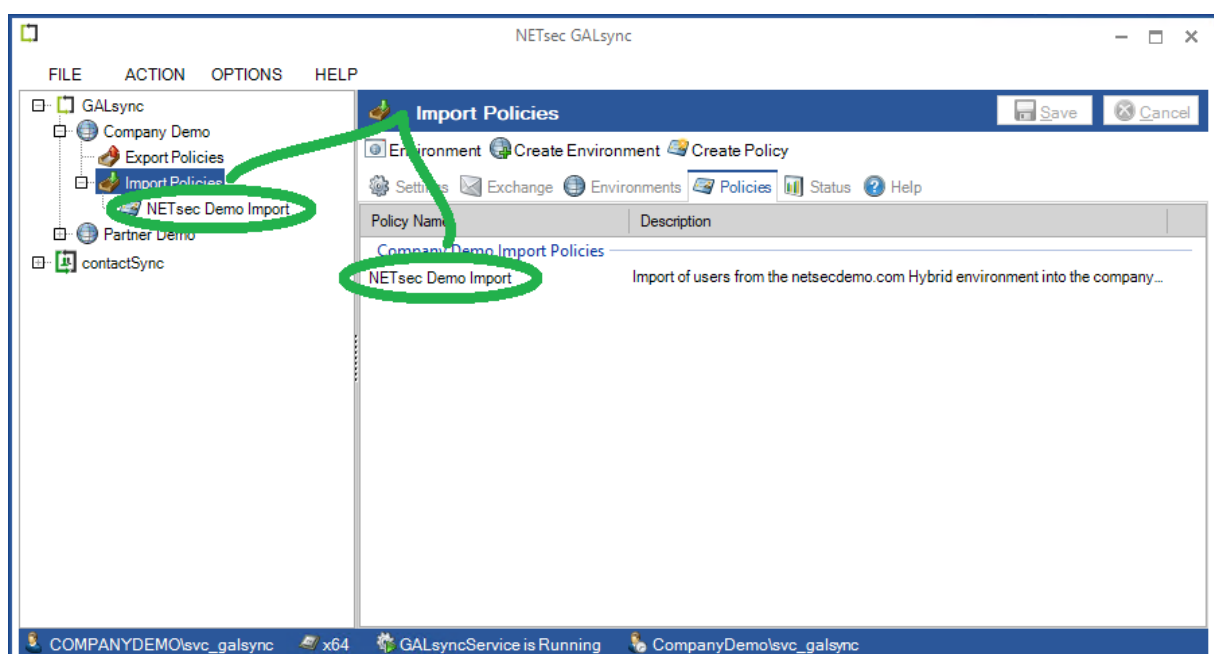


To ensure your settings have been properly configured GALsync will check your policy settings and notify you of any detected errors.

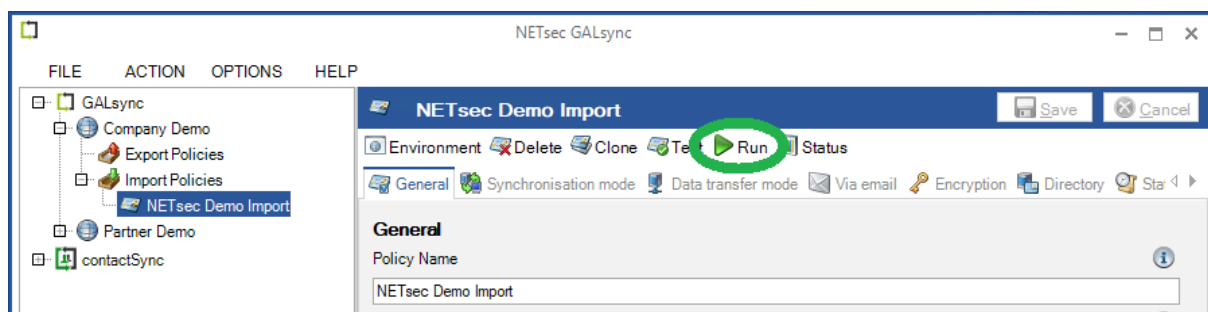
Click **Finish** to complete the wizard.



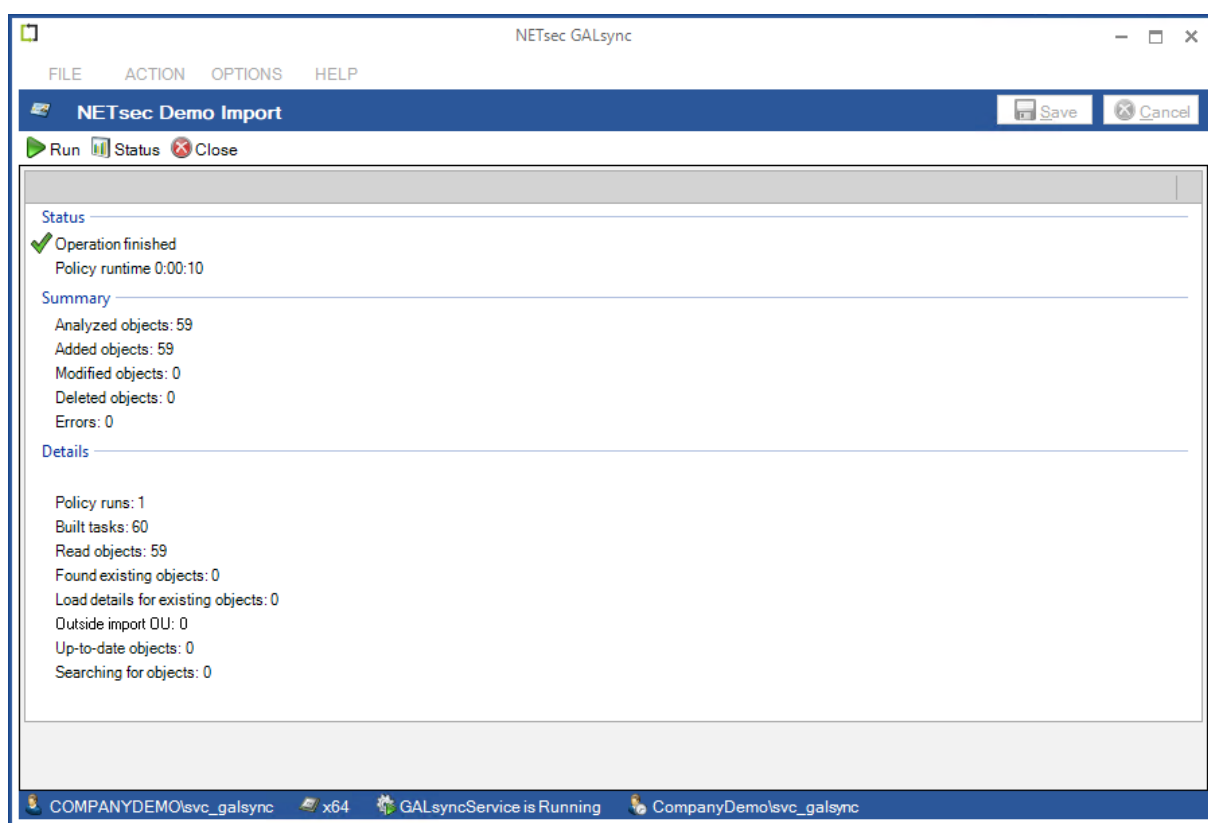
Select the policy from either node shown below.



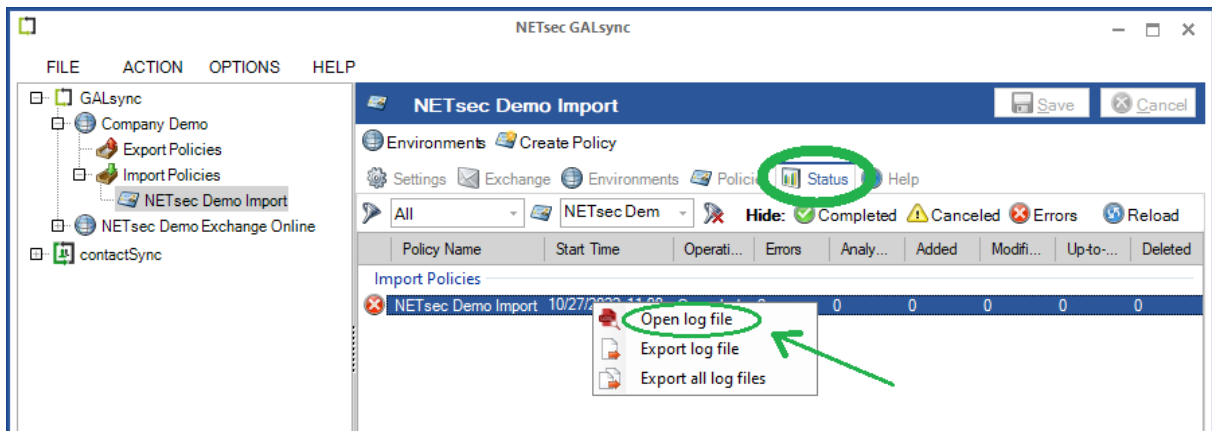
Click **Run**.



59 objects were added.



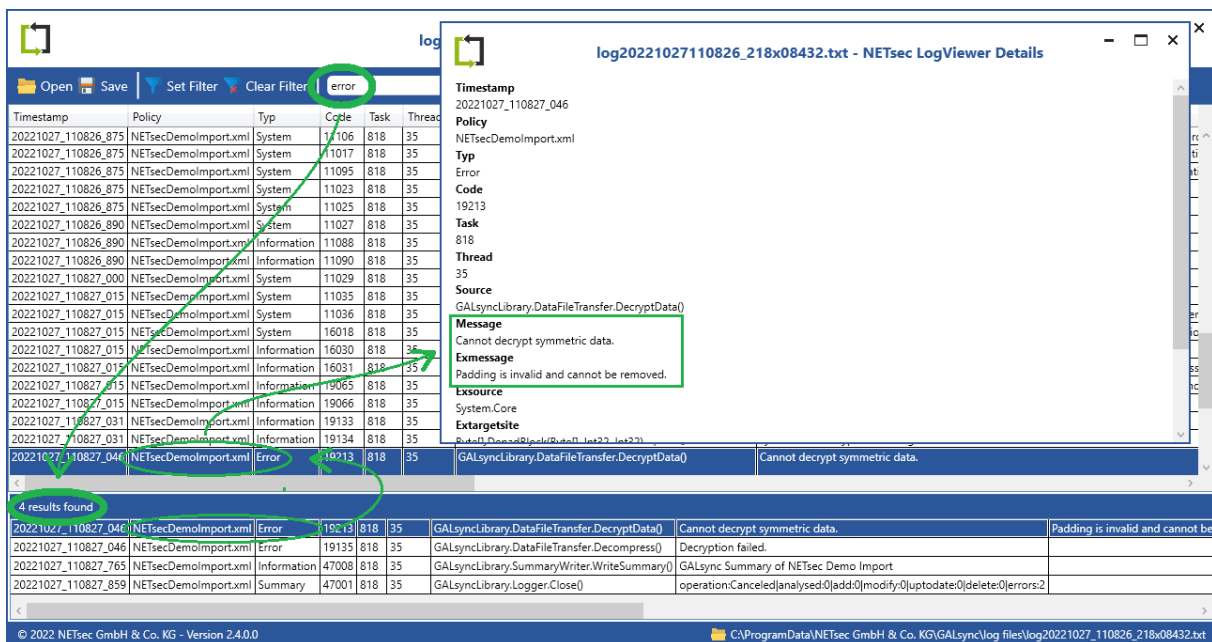
The corresponding log file can be opened by selecting the Status tab, and right-clicking the associated log and selecting **Open log file** from the context menu. This allows you to easily find the error and identify its cause, as shown in the example below.



Searching for the string "error" yields 4 log entries containing this string.

Double-click the line which contains the error. This will highlight the line in the log which contains the details of this log entry.

Double-click the highlighted line in the log viewer.



## Support: What to do when I notice an error / bug?

We always try to provide a very responsive, solution orientated and effective support. Should you encounter any issue, bug or inconvenience please do not hesitate to contact us.

Please email us at [support@netsec.de](mailto:support@netsec.de).

To enable us to provide you the best quality support possible, please provide us with the following information:

### Environment Overview

- Which Exchange version do you use?
- Which GALsync version do you use?
- Does the GALsync service account have an Exchange mailbox and where it is located?

### Description of the issue

Please describe your issue/bug/inconvenience thoroughly, in detail, what you wanted to achieve and what you were doing as it occurred.

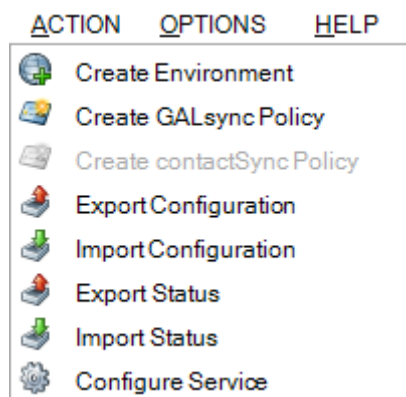
A screenshot of the issue often helps us to understand.

### Configuration and log files

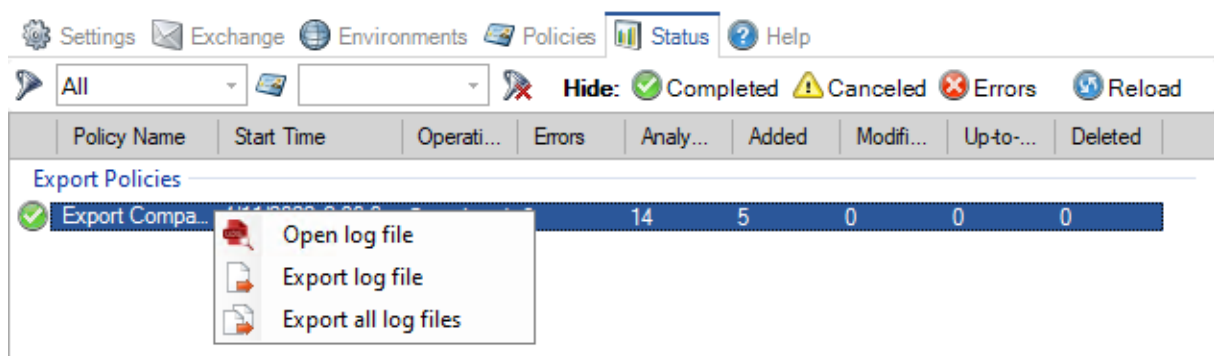
We also require the configuration and the logs, preferably zipped.

In menu **Action** -> **Export Configuration** you can zip the policies.

In menu **Action** -> **Export Status** you can zip the log files.



The log files of a policy can be also compressed on the **Status** tab:



Please send an email to [support@netsec.de](mailto:support@netsec.de) with a description of the issue and attach the compressed file with the configuration and the compressed file with the log files.

Alternatively, you could also upload the compressed files for us at the **NETsec Support Dropzone**

<https://transfer.netsec.de/dropzone/support>

Do you have more questions or need further support? Please do not hesitate to contact the GALsync Support Team.

#### **GALsync Support Team**

By phone +49 2421 998 78 16 or via e-mail [support@netsec.de](mailto:support@netsec.de)