OpenAir

Exchange Integration Manager

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ORACLE NETSUITE

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OpenAir Exchange Manager Overview

OpenAir Exchange Manager is a Windows-based application that enables IT system administrators to set up and run the integration between OpenAir and Microsoft Exchange. You can configure the OpenAir <> Exchange integration to:

- Export automatically either or all the following OpenAir transactions for any OpenAir user to the Exchange user mailbox as a calendar event, and update or delete the calendar events in the Exchange user mailbox when the transactions are changed or deleted in OpenAir. These OpenAir transactions show in the user's email client's calendar. The calendar events in the Exchange user mailboxes are updated or deleted You can select the type of transactions you want to export to the Exchange user mailbox for each user.
  - Task assignments — Only task assignments with non-zero planned hours are exported.
  - Bookings — The resulting calendar event will show as **Free** time, by default. You can map booking types in OpenAir to specific "Show As" designation for the calendar event in Exchange user mailboxes so that the resulting calendar event shows as Free, Tentative, Busy, or Out of Office, and you can prevent bookings from being exported, depending on the booking type. See Mapping OpenAir Booking Type to Exchange Calendar Event "Show As" Designation.
  - Time off requests (or schedule requests).

  Note: Some of these OpenAir transactions are constrained only by dates with no start and end times. These transactions export as an entire day. The subject line and body of the calendar event shows information similar to that shown in the OpenAir calendar. See Examples of OpenAir Transactions Exported as Calendar Events.

- Import automatically calendar events created by a user in their email client into OpenAir as bookings for that user, and update bookings in OpenAir when changes are made to the calendar events in the Exchange user mailbox. This functionality enables users to control OpenAir bookings from their email client's calendar to some extent. It also makes calendar events created in the email client visible in OpenAir. You can choose whether to import calendar events from the Exchange user mailbox as bookings for each user.

  Note: By default the integration is unidirectional (export from OpenAir to Microsoft Exchange only). You must enable the bidirectional integration to import Exchange calendar events into OpenAir as bookings. For more information, see Configuring the Synchronization of OpenAir Bookings and Exchange Calendar Events.

  If the calendar event includes multiple attendees, the OpenAir <> Exchange integration imports the Exchange calendar event as different bookings in OpenAir for each attendee if the bidirectional integration is set up for this attendee. If the user rejects the event invitation or deletes the event in the email client's calendar, the integration deletes the booking or changes the booking type, depending on your integration configuration.

  The start date and time, and end date and time are adjusted to account for the time zone of the user. You should refresh the OpenAir user – Exchange user mailbox mapping information when changing users' time zone preferences change in OpenAir. To do so, launch OpenAir Exchange Setup and click File > **Update**. See Setting Up the OpenAir Exchange Integration.

This guide describes the functionality available in OpenAir Exchange Manager 5.0 and later versions.

Note: The OpenAir Outlook Connector add-on service can be used by authorized individual OpenAir users to export their task assignments, bookings, and schedule requests to their Outlook calendar. OpenAir Exchange Manager and OpenAir Outlook Connector are mutually exclusive. You must disable access to OpenAir Outlook Connector for all users on your OpenAir account before you enable access to OpenAir Exchange Manager.

OpenAir Exchange Manager Components

OpenAir Exchange Manager includes three components:

- **OpenAir Exchange Setup** (`OpenAirExchange.exe`) — Use OpenAir Exchange Setup to set up the OpenAir <> Exchange integration. See Setting Up the OpenAir Exchange Integration.

  You can control:

  - Details necessary to connect OpenAir with Active Directory or Azure Active Directory, and Microsoft Exchange.
  - Optional bidirectional integration settings, importing Exchange calendar events as bookings in OpenAir.
  - Mapping information matching each OpenAir user record with a user mailbox.
  - Which OpenAir transactions (task assignments, bookings, time-off requests) are exported to an Exchange user mailbox for each mapped user.
  - Whether Exchange calendar events are imported into OpenAir for each mapped user, if the bidirectional integration is enabled.
- **OpenAir Exchange Engine** (`OpenAirExchangeEngine.exe`) — Use OpenAir Exchange Engine to run the integration. See Running the OpenAir Exchange Integration.
- **OpenAir Exchange Tray Monitor** (`OpenAirExchangeTrayMonitor.exe`) — Use the OpenAir Exchange Tray Monitor to run, or to stop OpenAir Exchange Engine as a Windows service, and to monitor its status and activity. See Running OpenAir Exchange Engine as a Windows Service

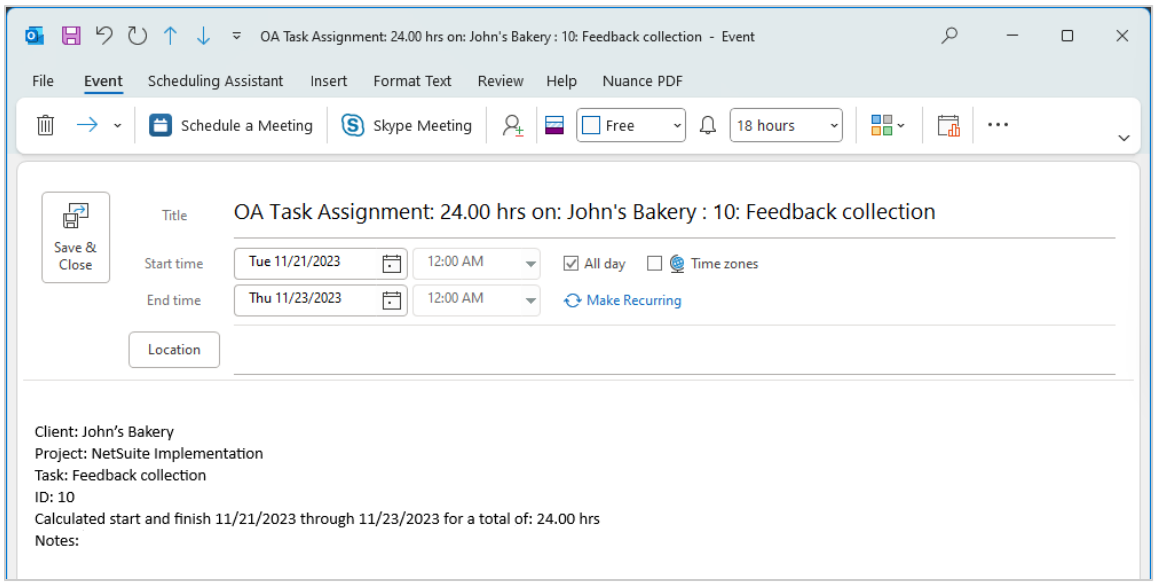
Examples of OpenAir Transactions Exported as Calendar Events

The OpenAir <> Exchange integration exports task assignments, resource bookings, and schedule requests created in OpenAir for a mapped user as an event on the user's calendar in Outlook. The following examples shows transactions created in OpenAir and exported as Exchange calendar events:

- OpenAir Task Assignment Exported as Calendar Event
- OpenAir Booking Exported as Calendar Event
- OpenAir Schedule Request Exported as Calendar Event

OpenAir Task Assignment Exported as Calendar Event

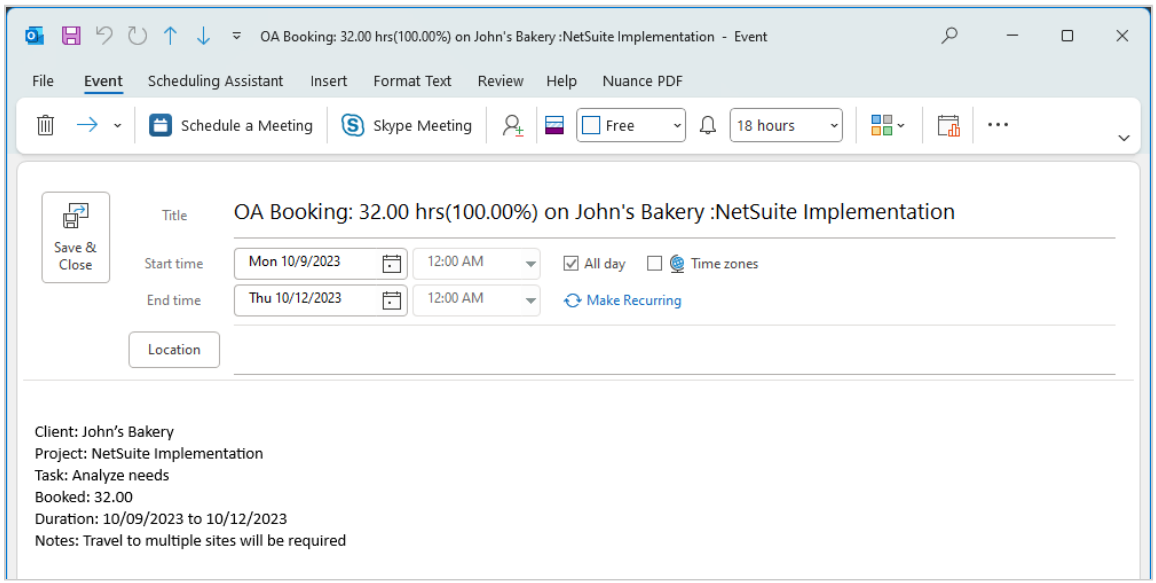
The following example shows a project task assignment that was created in OpenAir, and then exported to an Exchange user mailbox as a calendar event using OpenAir Exchange Manager. The calendar event shows as an all-day event. The Subject line includes the text “OA Task Assignment” followed by the total time, project name, task ID, and task name. The body of the calendar event includes task information as well as the customer company name and the project name.



OpenAir Booking Exported as Calendar Event

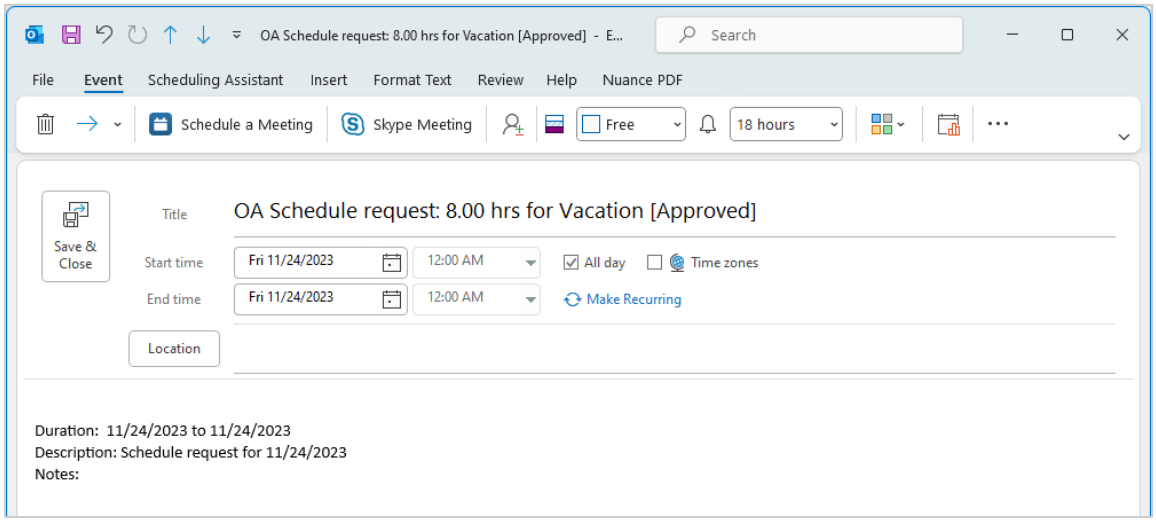
The following example shows a resource booking that was created in OpenAir, and then exported to an Exchange user mailbox as a calendar event using OpenAir Exchange Manager. The calendar event shows the start date and end date selected on the OpenAir booking. The Subject line includes the text "OA Booking" followed by the total time, customer name and project name. The body of the calendar event includes the customer name, the project name, the project task name, the duration of the booking, and notes about the booking, if any.

Note: Depending on your OpenAir account configuration, you may create bookings with a start date and time and an end date and time. This is enabled when the optional feature **Enable work schedule time ranges** is enabled in OpenAir (Administration > Global settings > Account > Optional features). In this case, the calendar event shows the start date and time, and end date and time entered on the OpenAir booking. Otherwise, the calendar event shows as an all-day event.



OpenAir Schedule Request Exported as Calendar Event

The following example shows a schedule request that was created in OpenAir, and then exported to an Exchange user mailbox as a calendar event using OpenAir Exchange Manager. The Subject line includes the text "OA Schedule request" followed by the total time, project name, and schedule request status. The body of the calendar event includes schedule request information (duration, description, and notes).



Getting Started with OpenAir Exchange Manager

The following steps outline what you need to do to set up and run the OpenAir <> Exchange integration.

Step 1: Download and Install OpenAir Exchange Manager

See Installing, Updating and Uninstalling OpenAir Exchange Manager.

OpenAir Professional Services provides you with a link for downloading OpenAir Exchange Manager.

Review System Requirements and Technical Considerations before installing OpenAIr Exchange Manager. For more information, .

Step 2: Ensure Appropriate OpenAir Features are Enabled

Contact OpenAir Customer Support and ensure that:

- Access to OpenAir Exchange Manager is enabled for your account.
- Access to OpenAir Outlook Connector is disabled for your account.

Note: The OpenAir Outlook Connector add-on service can be used by authorized individual OpenAir users to export their task assignments, bookings, and schedule requests to their Outlook calendar. OpenAir Exchange Manager and OpenAir Outlook Connector are mutually exclusive. You must disable access to OpenAir Outlook Connector for all users on your OpenAir account before you enable access to OpenAir Exchange Manager.

Step 3: Set Up the OpenAir Exchange Integration

Use OpenAir Exchange Setup to configure the OpenAir <> Exchange integration.

You can control:

- Details necessary to connect OpenAir with Active Directory or Azure Active Directory, and Microsoft Exchange.
- Optional bidirectional integration settings, importing Exchange calendar events as bookings in OpenAir.
- Mapping information matching each OpenAir user record with a user mailbox.
- Which OpenAir transactions (task assignments, bookings, time-off requests) are exported to the Exchange user mailbox for each mapped user.
- Whether Exchange calendar events are imported into OpenAir for each mapped user, if the bidirectional integration is enabled.

For more information, see Setting Up the OpenAir Exchange Integration.

Step 4: Run the OpenAir Exchange Integration

After you configure the OpenAir <> Exchange integration, you can run OpenAir Exchange Engine to export task assignments, bookings, and time off requests (schedule requests) from OpenAir to Exchange user mailboxes as calendar events and import calendar events from Exchange user mailboxes to OpenAir as bookings if the bidirectional integration is enabled.

If you use OpenAir Exchange Manager 5.0 or later version, you can run OpenAir Exchange Engine as a Windows service.

For more information, see Running the OpenAir Exchange Integration.

System Requirements and Technical Considerations

OpenAir Exchange Manager is a Windows-based application that enables IT system administrators to set up and run the integration between OpenAir and Microsoft Exchange. This help topic includes detail about the following system requirements and technical considerations:

- System Requirements to install, configure and run OpenAir Exchange Manager on your computer.
- Infrastructure that OpenAir Exchange Manager supports.
- Communication Interfaces used by the OpenAir <> Exchange integration.
- Role Permissions required to set up and run the OpenAir <> Exchange integration.

Windows domain configurations that OpenAir Exchange supports, the system requirements for installing and running OpenAir Exchange Manager, and other texhgnical You can use OpenAir Exchange Manager with:

Infrastructure

You can use the OpenAir <> Exchange integration with an on-premise Windows domain network configuration, a cloud-based environment, or an hybrid configuration.

On-premise	Online	Hybrid
Active Directory (LDAP protocol)	**Azure Active Directory**	—
All mailboxes stored in **Exchange Server** organizations. Supported versions: 2007 SP1, 2010, 2010 SP1, 2010 SP2, 2013, 2013 SP1, 2016. You must run the same version of Microsoft Exchange Server across all instances to use the integration with mailboxes stored in multiple **Exchange Server** organizations.	All mailboxes stored in **Exchange Online** organizations.	Some mailboxes are stored in Exchange Online organizations, some in on-premise Exchange organizations.

Note: Review the following guidelines:

- If Active Directory is not available, you need to set up mapping between OpenAir and Exchange Server users manually.
- If some or all mailboxes are stored in an on-premise Exchange organization, you should install OpenAir Exchange Manager on a separate server or workstation on the same network as the company's Exchange server. This ensures the integration has access to Active Directory to query users, but does not store the integration configuration on the same server.
- If OpenAir Exchange Manager is set up on a remote server outside the company network, the integration typically needs VPN access to the company network to be able to interface with the Exchange server.

System Requirements

The following requirements must be met to install, configure, and run OpenAir Integration Manager on a :

- **Operating System**
  - Microsoft Windows Server 2012, 2012 R2, 2016 or 2019
  - Microsoft Windows 8, 8.1 and 10
- Microsoft .NET Framework Version 4.7.2.

  Note: The OpenAir Exchange Manager installer automatically downloads it if it is not installed on your computer.
- RAM 1GB or more.

Communication Interfaces

OpenAir Exchange Manager use the following communication interfaces:

- OpenAir XML API to transfer information from and to OpenAir over a secure layer using the HTTPS protocol (port 443). No incoming ports need to be opened in the firewall.
- Active Directory Services Interface (ADSI) and Lightweight Directory Access Protocol (LDAP) to communicate with on-premise Active Directory and retrieve the user information (email address and home mailbox server) required to map Exchange user mailboxes (and associated Active Directory user accounts) with OpenAir user records.
- Exchange Web Services (EWS) to connect to Microsoft Exchange and create calendar events in user mailboxes.

Important: Note the following compatibility guidelines:

- OpenAir Exchange Manager 5.0 or later version does not support WebDAV. If you are using Microsoft Exchange Server 2007, you will be required to use EWS instead.
- Microsoft no longer supports Basic authentication for EWS to access Exchange Online. OpenAir Exchange Manager 5.1 introduced support for using OAuth 2.0 to connect to Exchange Online using EWS. To configure and run the integration between OpenAir and Microsoft Exchange Online, you must use OpenAir Exchange Manager 5.1 or later version and register OpenAir Exchange Manager with Azure Active Directory. See Registering OpenAir Exchange Manager With Microsoft Identity Platform.

Role Permissions

To set up and run OpenAir <> Exchange integration you must have user accounts with the following permissions:

Software	Role permissions	Notes
OpenAir	Account administrator	Required to read and update all task assignments, resource bookings, and schedule requests.
Active Directory	Domain administrator	Required to read the user information (email address and home mailbox server) required to map Exchange user mailboxes (and associated Active Directory user accounts) with OpenAir user records.
Microsoft Exchange	Administrator	Required to grant access to user mailboxes and modify Exchange settings if necessary.
	Read and Write access permissions to all user mailboxes	Should be used to run OpenAir Exchange Engine, which does not require Exchange or Enterprise administrator privileges.
Windows / Windows Server	Administrator	Required to run OpenAir Exchange Setup and OpenAir Exchange Engine applications.

Known Limitations

The integration has the following limitations:

- Exchange Web Services (EWS) limits the calendar item duration to five years maximum. If any task assignments, resource bookings or time off requests exceed five years in OpenAir, the integration automatically sets the duration of calendar events to five years (maximum duration supported by EWS).

Backup

You should backup the file containing your OpenAir <> Exchange integration configuration settings (`oaexchdb.mdb`) periodically. The file is located in the OpenAir Exchange Manager installation folder – typically, `C:\Program Files (x86)\OpenAir\ExchangeManager`.

Installing, Updating and Uninstalling OpenAir Exchange Manager

Important: You must disable access to OpenAir Outlook Connector for all users on your OpenAir account before you start using OpenAir Exchange Manager. These two add-on services cannot run simultaneously for the same OpenAir account.

OpenAir Professional Services provide you with a link to download the OpenAir Exchange Manager installer EXE file as part of the initial setup. You use this link to download and install the latest version of OpenAir Exchange Manager. For more information, see .

Before you install OpenAir Exchange Manager, review the system requirements and technical considerations – see System Requirements and Technical Considerations.

You should review OpenAir Release Notes regularly and update OpenAir Exchange Manager to the latest available version to take advantage of new features, product enhancements and defect fixes.

You can uninstall OpenAir Exchange Manager at any time. For more information, see Uninstalling OpenAir Exchange Manager.

Installing or Updating OpenAir Exchange Manager

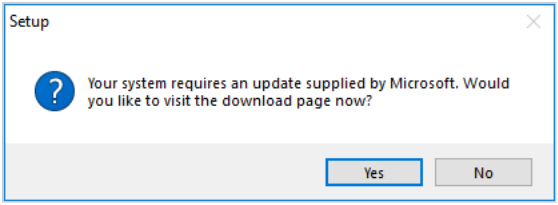
Use the following steps to install or update OpenAir Exchange Manager. You do not need to uninstall the current version to update OpenAir Exchange Manager to the latest version.

The following steps are given for Windows 10.

To install or update OpenAir Exchange Manager:

1. Download the installer EXE file using the link provided by OpenAir Professional Services.
2. Run the OpenAir Exchange Manager installer file. You must have administrator rights for the computer on which you are installing OpenAir Exchange Manager and run the installer as and administrator.

   If Microsoft .NET framework 4.7.2 is not installed on your computer, a popup window appears prompting you to download and install an update supplied by Microsoft.



   a. Click **Yes**.

      Note: Microsoft .NET framework 4.7.2 is required to run OpenAir Exchange Manager 5.0 or later version. If you click **No**, the installer will close and OpenAir Exchange Manager will not install.

   b. A new window or tab opens in your default browser and the following message displays. Click **Run**.

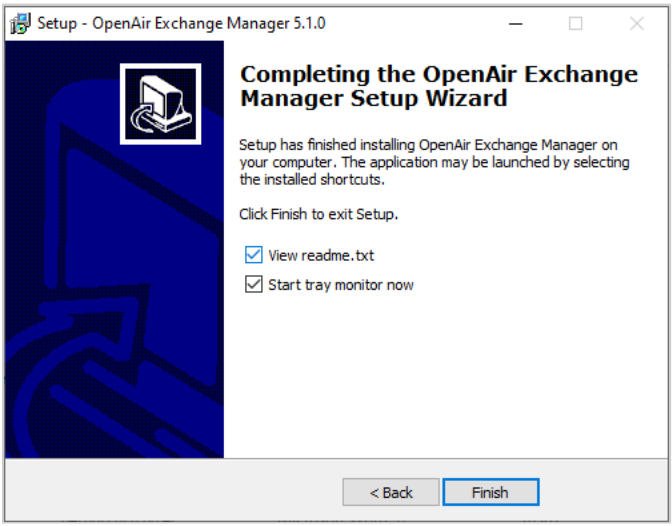
> **Important:** You should exit all applications that are using the .NET framework before you install this update. You may have to restart your computer after installing the Microsoft .NET framework 4.7.2 update.

c. After the installation Microsoft .NET framework 4.7.2 completes, restart your computer if required and run the OpenAir Exchange Manager installer file again.

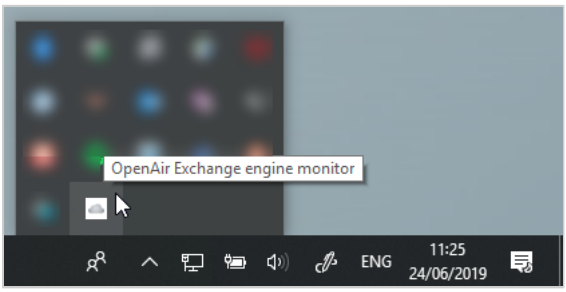
The OpenAir Exchange Manager installation wizard appears.

3. Click **Next**.
4. Read and accept the License Agreement then click **Next**.
5. Choose the location to install OpenAir Exchange Manager then click **Next**.

   The default location is `C:\Program Files(x86)\OpenAir\ExchangeManager`.
6. Review your installation settings, then click **Install**.

   The wizard shows the installation progress. After the installation completes, the wizard shows information about the application (the content of the `README.TXT` file).
7. Review the content of `README.TXT`, then click **Next**.
8. 

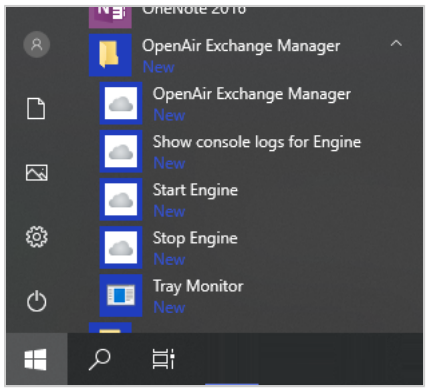
9. Check the **View readme.txt** box if you want to open `README.TXT` automatically in you default text editor after you exit the installation wizard.
10. Check the **Start tray monitor now** box if you want to launch OpenAir Exchange Engine Monitor automatically and make it available in the Taskbar System Tray after you exit the installation wizard.



11. Click **Finish**.

    Five shortcuts are available from the Windows Start menu under the OpenAir Exchange Manager program folder:

    - **OpenAir Exchange Manager** – Use this shortcut to launch OpenAir Exchange Setup and set up the integration. See Setting Up the OpenAir Exchange Integration
    - **Start Engine**, **Stop Engine**, and **Show console logs for Engine** – Use these shortcuts to run, stop the integration and show logs for the integration, respectively. See Running the OpenAir Exchange Integration.
    - **Tray Monitor** – Use this shortcut to launch OpenAir Exchange Tray Monitor and make it available in the Taskbar System Tray.



Uninstalling OpenAir Exchange Manager

You can uninstall OpenAir Exchange Manager at any time if you no longer plan to use OpenAir Exchange Manager or if you want to install it on a different computer.

The following steps are given for Windows 10.

To uninstall OpenAir Exchange Manager:

1. Click the Windows Start menu icon, then **Settings**.

   The Settings screen appears.

2. Click **Apps & Features**.

   The Apps & Features screen appears and lists the applications installed on your computer.

3. Locate and click **OpenAir Exchange Manager**.

4. Click **Uninstall**.

   A prompt appears to verify the action.

5. Click **Yes**.

   A message appears verifying the action.

6. Click **OK**.

7. (Optional) Delete the installation folder. The default installation location is `C:\Program Files (x86)\OpenAir\ExchangeManager` but you can choose a different location during the installation – see Installing or Updating OpenAir Exchange Manager.

Important: Uninstalling OpenAir Exchange Manager does not delete the configuration settings and OpenAir users <> user mailboxes mapping information.

To remove all settings completely, delete the installation folder.

Setting Up the OpenAir Exchange Integration

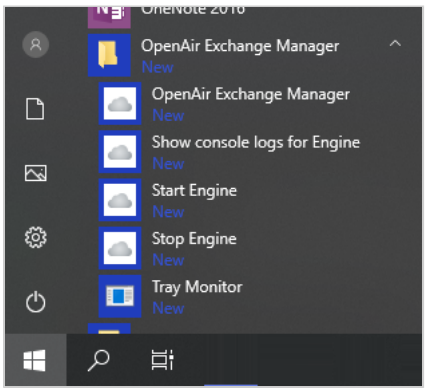
You must configure OpenAir Exchange Manager before you can use the OpenAir Exchange Engine to run the integration and transfer OpenAir transactions such as task assignments, bookings, and time off requests (or schedule requests) to Microsoft Exchange as a calendar event in user mailboxes.

Use OpenAir Exchange Setup to configure the OpenAir <> Exchange integration.

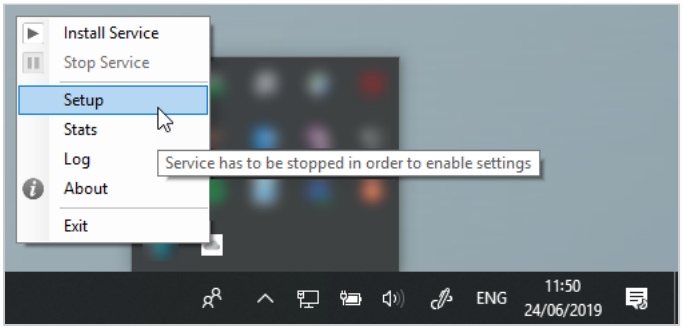
For an overview of the main OpenAir Exchange Setup window and menu options, see OpenAir Exchange Setup Overview

To set up the OpenAir <> Exchange integration:

1. Launch OpenAir Exchange Setup. To do so, do one of the following:
   - Go to the application installation directory (the default installation directory is `C:\Program Files (x86)\OpenAir\ExchangeManager`). Click **OpenAirExchange.exe**.
   - Go to the Windows start menu, scroll down to OpenAir Exchange Manager, expand the program folder and click **OpenAir Exchange Manager**.

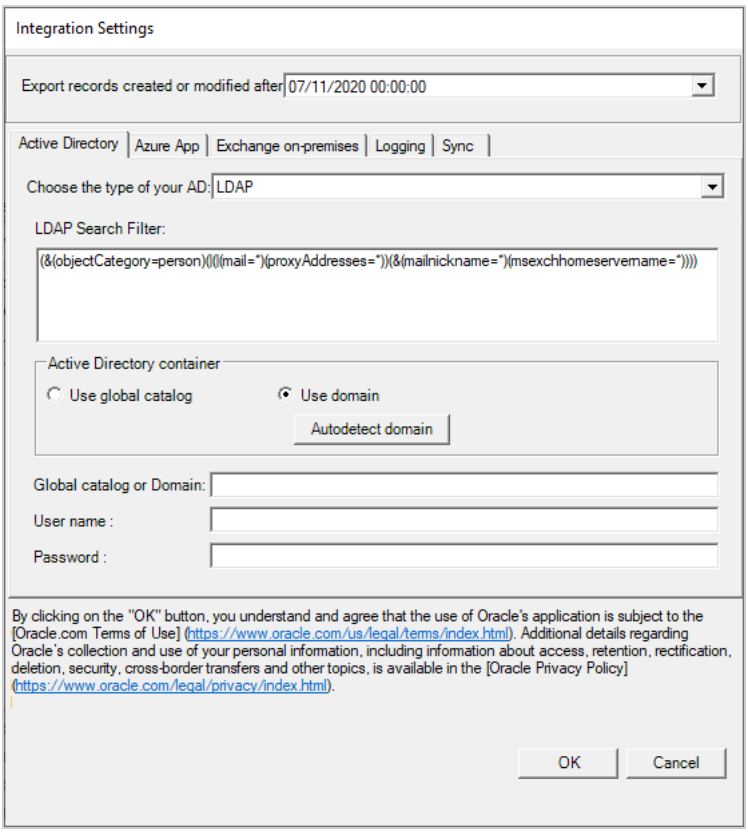


   - If you installed OpenAir Exchange Manager 5.0 or later version and selected **Start tray monitor now** during the installation, right-click the OpenAir Icon in the taskbar system tray and click **Setup**.



2. Enter the details to connect OpenAir Exchange Manager with your OpenAir account. See Connecting OpenAir Exchange Manager with your OpenAir account.
3. Go to Options > Integration Settings.

   The Integration Settings window appears.



4. Select a date from the **Export records created or modified after** dropdown list. When running the OpenAir <> Exchange Integration, only the task assignments, bookings, and time off requests created or modified after this date are exported to user mailboxes as calendar events.
5. Enter the details to connect OpenAir Exchange Manager with Active Directory and Exchange.

   You can use the OpenAir <> Exchange integration with an on-premise Windows domain network configuration, a cloud-based environment, or an hybrid configuration. See Infrastructure.

   a. Before you can connect OpenAir Exchange Manager with Azure Active Directory, Exchange Online, or both, register OpenAir Exchange Manager with the Microsoft identity platform. See Registering OpenAir Exchange Manager With Microsoft Identity Platform.

   b. Enter the details to connect OpenAir Exchange Manager with Active Directory (on-premise) or Azure Active Directory. When connected, OpenAir Exchange Setup sources user mailbox information from Active Directory or Azure Active Directory. You can also enter user mailbox information manually or import it from a CSV file. See Editing Exchange User Mailbox Information.

      - On-premise Active Directory — For more information, see Connecting OpenAir Exchange Manager with On-Premise Active Directory Using LDAP.
      - Azure Active Directory — For more information, see Connecting OpenAir Exchange Manager with Azure Active Directory or Exchange Online.

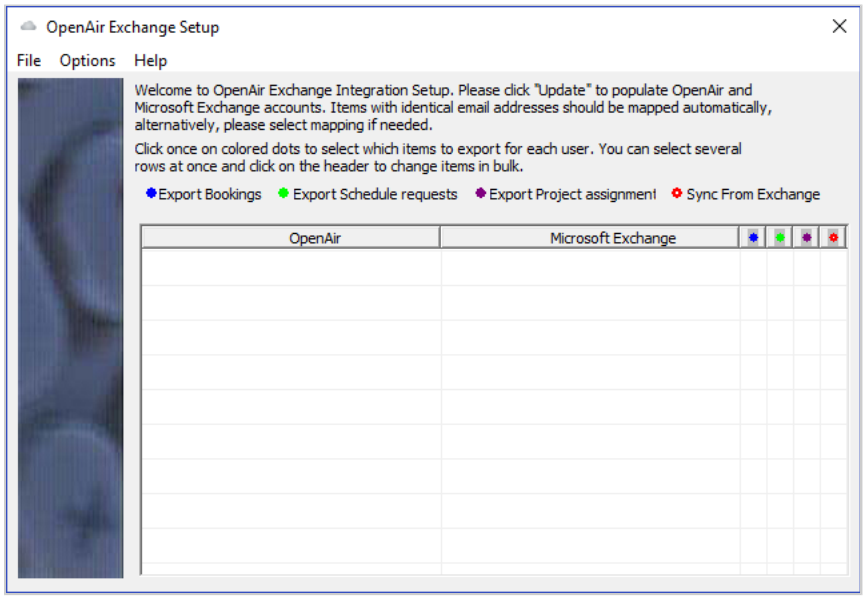
   c. Enter the details to connect OpenAir Exchange Manager with Exchange. You can use OpenAir Exchange Manager to exchange information between OpenAir and user mailboxes that are stored in on-premise Exchange Server organizations, in Exchange Online Organizations, or in a combination of both Exchange Server and Exchange Online organizations.

- On-premise Exchange (mailboxes stored in Exchange Server organizations) — For more information, see Connecting OpenAir Exchange Manager with On-Premise Exchange Server.
- Exchange Online (mailboxes stored in Exchange Online organizations) — For more information, see Connecting OpenAir Exchange Manager with Azure Active Directory or Exchange Online.

6. (Optional) Configure OpenAir Exchange Manager to send integration log automatically by email. See Sending OpenAir Exchange Integration Logs to a Designated Email Address.
7. (Optional) Enable and configure the bidirectional integration. You can use the bidirectional integration or Exchange <> OpenAir synchronization to import calendar events created by a user in an email client into OpenAir as bookings for that user, and update these bookings when changes are made to the calendar events in the email client. See Configuring the Synchronization of OpenAir Bookings and Exchange Calendar Events.
8. (Optional) Map booking types in OpenAir to specific "Show As" designation for the calendar event in Exchange user mailboxes so that the resulting calendar event shows as Free, Tentative, Busy, or Out of Office, depending on the booking type. You can also exclude bookings from the export, depending on the booking type. See Mapping OpenAir Booking Type to Exchange Calendar Event "Show As" Designation.
9. Map OpenAir user and Exchange user mailbox information using the table on the main OpenAir Exchange Setup window. See Mapping OpenAir Users and Exchange User Mailboxes.
10. Click File > **Save** to save the integration configuration and mapping information.
11. Click File > **Exit** to close OpenAir Exchange Setup.
12. (Optional) Review and change advanced settings in the Windows registry. See OpenAir Exchange Manager Registry Settings.

OpenAir Exchange Setup Overview

The main OpenAir Exchange Setup window includes a top menu bar and a table matching each OpenAir employee (user) record with a user mailbox.



Click the menu headers to view the available menu options:

- **File** — The File menu includes the following options:
  - **Save** — Click **Save** to save the integration configuration and mapping information.
  - **Update** — Click **Update** to fetch the latest information about OpenAir employee (user) records and Exchange mailboxes and populate or update the OpenAir user – Exchange user mailbox mapping information.

    Note: Refresh the OpenAir user – Exchange user mailbox mapping information when changing users' time zone preferences change in OpenAir.
  - **Exit** — Click **Exit** to close OpenAir Exchange Setup.
- **Options** — The Options menu includes the following options:
  - **OpenAir Settings** — You must enter your OpenAir login details to connect OpenAir Exchange Manager with your OpenAir account. See Connecting OpenAir Exchange Manager with your OpenAir account.
  - **Integration Settings** — You must provide information to connect OpenAir Exchange Manager with Active Directory or Azure Active directory, and Exchange before you can map OpenAir users with their corresponding Exchange mailboxes.
    - Connecting OpenAir Exchange Manager with On-Premise Active Directory Using LDAP.
    - Connecting OpenAir Exchange Manager with On-Premise Exchange Server.
    - Connecting OpenAir Exchange Manager with Azure Active Directory or Exchange Online.

    Use the Integration settings to control integration options and enable the bidirectional integration if you want to import Exchange calendar events into OpenAir as bookings.
    - Sending OpenAir Exchange Integration Logs to a Designated Email Address.
    - Configuring the Synchronization of OpenAir Bookings and Exchange Calendar Events.
  - **Manually edit Exchange users** — You can enter the list of Exchange user mailboxes manually, including information about the Exchange organization each mailbox is stored in, or you can import the list from a CSV file. See Editing Exchange User Mailbox Information.
- **Help** — The Help menu includes the following options:
  - **User Guide (pdf)** — Click to view the OpenAir Exchange Manager Administrator Guide for the version installed.
  - **Contents (Release notes)** — Click to view the `readme.txt` file for the version installed.
  - **OpenAir Web Site** — Click to view the OpenAir website (`www.openair.com`) in your default browser.
  - **Display Log** — You can view the log files in your default text editor. The following log files are available as submenu items:
    - Click **Configuration** to view the log file listing all setup and configuration actions performed using OpenAir Exchange Setup (`OpenAirExchange.log`).
    - Click **Engine** to view the log file listing all OpenAir Exchange Engine actions with dates and times. (`OpenAirExchangeEngine.log`).

    Note: You should attach a copy of both log files when contacting OpenAir Customer Support to report an issue with OpenAir Exchange Manager. See Troubleshooting OpenAir Exchange Manager.
  - **About OpenAir Exchange** — Click **About OpenAir Exchange** to view version information.

After you enter all configuration settings and fetch account and mailbox information from OpenAir and Exchange, you can map OpenAir users with their corresponding Exchange mailboxes using the table on

the main OpenAir Exchange Setup window. The mapping information also determines which OpenAir transactions (task assignments, bookings, time-off requests) are exported to Exchange and whether Exchange calendar events are imported into OpenAir for each mapped user.

Connecting OpenAir Exchange Manager with your OpenAir account

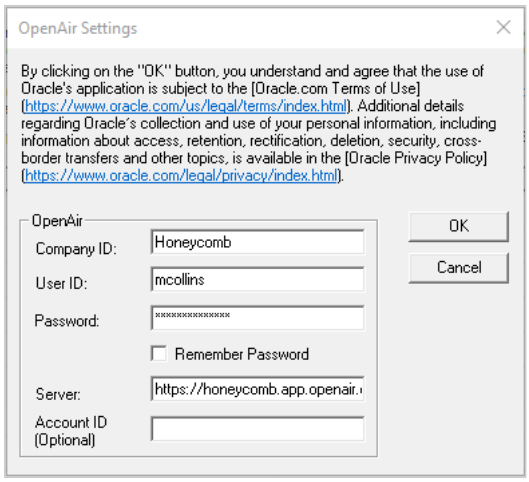
You must connect OpenAir Exchange Manager with your OpenAir account before you can use it to exchange information between OpenAir and Exchange.

You must provide the login details of an OpenAir account administrator to set up and run the OpenAir <> Exchange integration.

To connect OpenAir Exchange Manager with your OpenAir account

1. In OpenAir Exchange Setup, go to Options > OpenAir Settings

   The OpenAir Settings window appears.



2. Enter your **Company ID**, **User ID**, and **Password**. You must be an account administrator to.
3. (Optional) Check the **Remember Password** box to store your OpenAir credentials on this computer. When checked, the password is encrypted using industry standard security measures and stored on your computer. You will not need to enter your password again to run the OpenAir <> Exchange integration unless you change your password in OpenAir.
4. **Server** — Enter the URL for your OpenAir Account. The server URL includes the domain name for your OpenAir account `<account-domain>`. For more information about your account-specific domain name, see the help topic Use Account-Specific Domain.
5. Click **OK**.

> **Note:** By clicking on the **OK** button, you understand and agree that the use of Oracle's application is subject to the Oracle.com Terms of Use. Additional details regarding Oracle's collection and use of your personal information, including information about access, retention, rectification, deletion, security, cross-border transfers and other topics, is available in the Oracle Privacy Policy.

Registering OpenAir Exchange Manager With Microsoft Identity Platform

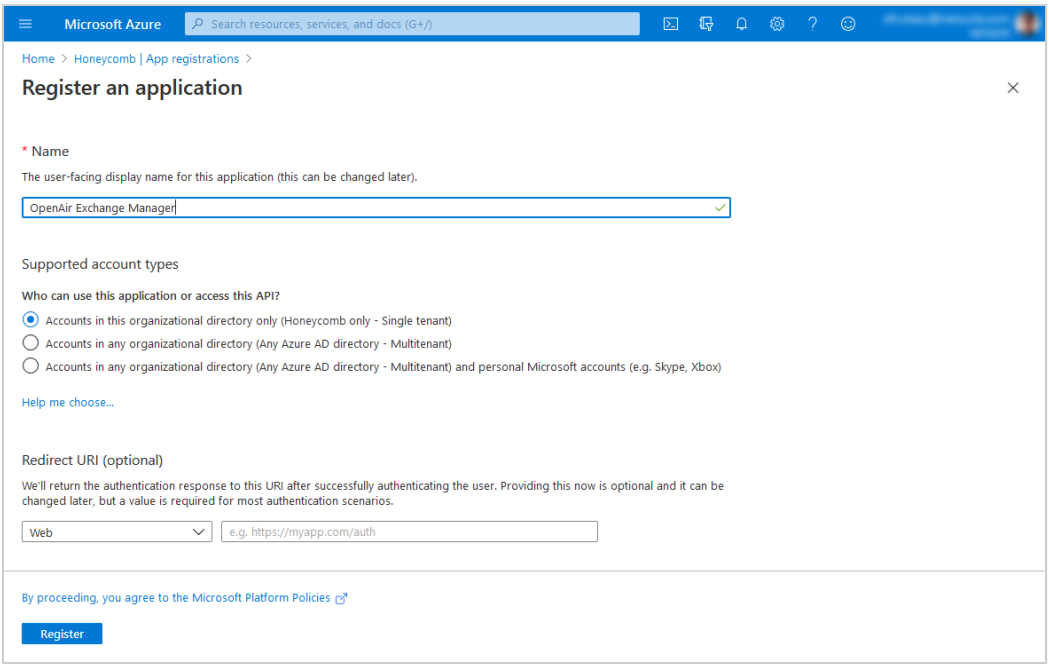
Note: The steps described in this topic are provided for illustration purposes only. Refer to the vendor documentation for detailed instructions about integrating an application with Microsoft identity platform. See Quickstart: Register an application with the Microsoft identity platform and Quickstart: Configure a client application to access a web API on the Microsoft website for more information.

Before you can connect OpenAir Exchange Manager with Azure Active Directory, Exchange Online, or both, you must register OpenAir Exchange Manager with the Microsoft identity platform first. The Microsoft identity platform provides secure sign-in and authorization for OpenAir Exchange Manager to access Azure Active Directory or Exchange Online through the relevant Web APIs using OAuth 2.0.

To register OpenAir Exchange Manager with Microsoft identity platform

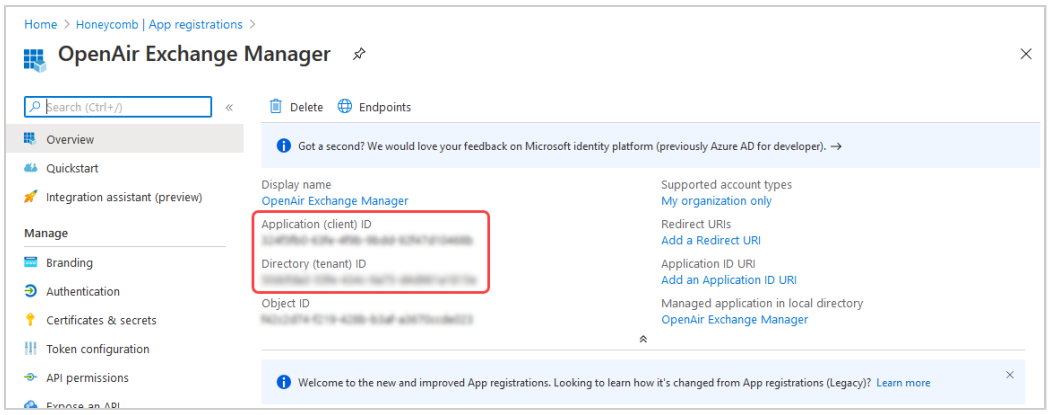
1. Sign in to the Azure portal.
2. If your account gives you access to more than one tenant, select the account you require in the top right corner.
3. Go to Azure Active Directory.
4. Click **App registrations** under Manage on the left pane.

   The App registrations screen appears.
5. Click **New registration**. The Register an application screen appears.
6. Enter a **Name** for the application — for example "OpenAir Exchange Manager" — and select Accounts in this organizational directory only (<Your tenant name> only — Single tenant) under **Supported account types**.



7. Click **Register**.

   The Overview screen for your new app appears.



8. Copy the **Application (client) ID** and **Directory (tenant) ID** and store this information in a safe place. You will need this information when configuring OpenAir Exchange Manager. See Connecting OpenAir Exchange Manager with Azure Active Directory or Exchange Online.
9. Click **API permissions** under Manage on the left pane.

   The API permissions screen appears.
10. Click **Add a permission**.

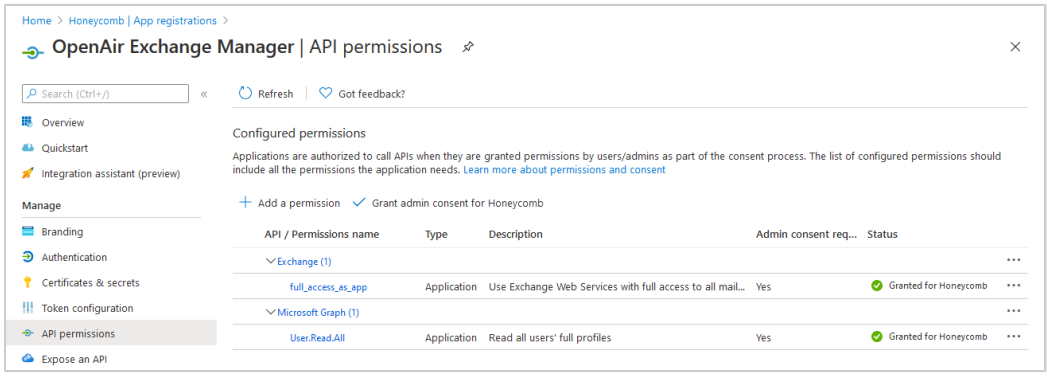
    The Request API permissions screen appears.
11. Click **Exchange** under Supported legacy APIs, then click **Application permissions**, and check the **full_access_as_app** box under Select permissions.
12. Click **Add permissions.**

    The API permissions screen appears and the application permission full_access_as_app for the Exchange API is included in the list of Configured permissions.
13. Click **Add a permission**, click **Microsoft Graph** under Commonly used APIs, click **Application permissions**, scroll to, and expand **User** permissions, check the **User.Read.All** box, and click **Add permissions.**

    The API permissions screen appears and the application permission User.Read.All for the Microsoft Graph API is included in the list of Configured permissions.
14. Click **Grant admin consent for <Your tenant name>** and **Accept** on the consent prompt.

    The API permissions screen shows the admin consent status for configured permissions as granted for <Your tenant name>.

> **Note:** You must have administrator privileges to grant admin consent to the permissions configured for the application.



15. Click **Certificates & secrets** under Manage on the left pane.

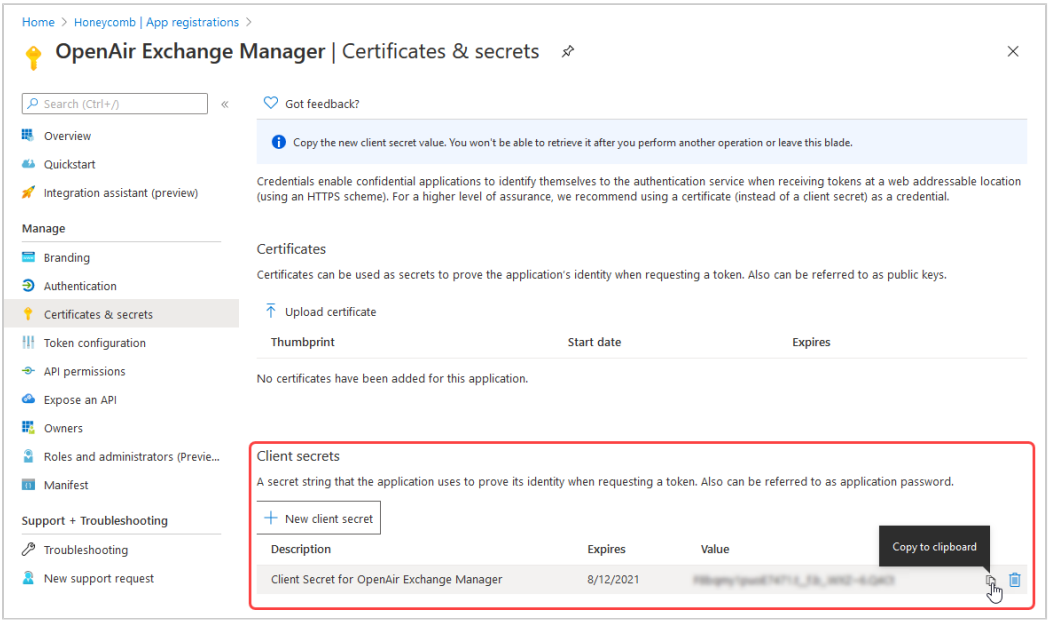
    The Certificates & secrets screen appears.

16. Click **New client secret**.

    The Add a client secret window appears.

17. Enter a **Description** and select when the client secret **Expires**, then click **Add**.

    The Certificates & secrets screen shows the client secret you have added.



18. Copy the Client secret **Value** and store it in a safe place. You will need this information when configuring OpenAir Exchange Manager. See Connecting OpenAir Exchange Manager with Azure Active Directory or Exchange Online.

Connecting OpenAir Exchange Manager with Azure Active Directory or Exchange Online

You can connect OpenAir Exchange Manager with:

- Azure Active Directory to retrieve user information.
- Exchange Online to export project task assignments, resource bookings, and schedule request calendar commitments from OpenAir to user mailboxes as calendar events, or import Exchange calendar events into OpenAir as bookings.

Before you can connect OpenAir Exchange Manager with Azure Active Directory or Exchange Online, you must register OpenAir Exchange Manager with Microsoft identity platform. Registration provides secure sign-in and authorization for Open Air Exchange Manager to access Azure Active Directory or Exchange Online using OAuth 2.0. See Registering OpenAir Exchange Manager With Microsoft Identity Platform.

To configure the integration with Azure Active Directory or Exchange Online:

1. In OpenAir Exchange Setup, go to Options > Integration Settings

The Integration Settings window appears.

2. If you are using Azure Active Directory, do the following steps:
   a. Click the **Active Directory** tab.
   b. Click the **Choose the type of your AD** dropdown, and select **Azure AD**.

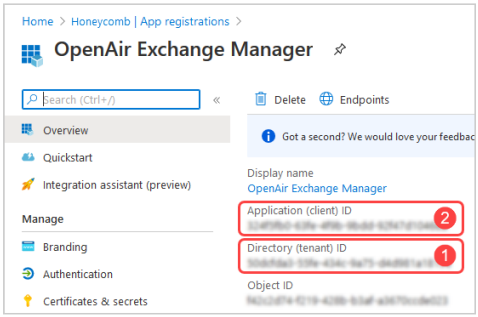
> **Note:** Skip these steps if you use an on-premises instance of Active Directory or if you do not use Active Directory.

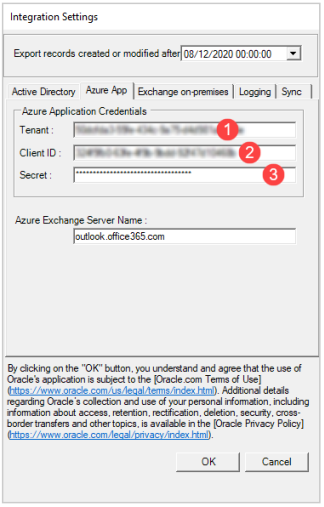
3. Click the **Azure App** tab.
4. Enter the **Azure Application Credentials** for the app you registered using the Azure portal :
   - **Tenant** — Enter the value for **Directory (tenant) ID** displayed on the Overview screen of your app registration on the Azure portal.
   - **Client ID** — Enter the value for **Application (client) ID** displayed on the Overview screen of your app registration on the Azure portal.
   - **Secret** — Enter the value for the **Client secret** you added on the Certificates & secrets screen of your app registration on the Azure portal.

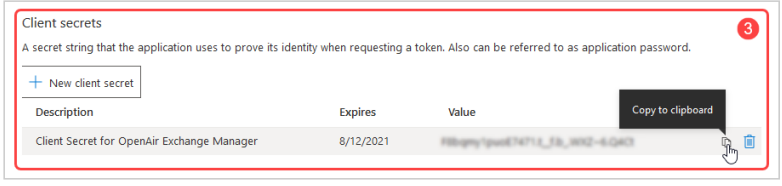
   For more information about registering OpenAir Exchange Manager on the Azure portal and obtaining the application credentials, see Registering OpenAir Exchange Manager With Microsoft Identity Platform
5. Enter the **Azure Exchange Server Name**. This is the domain name for Exchange Online — in most cases, you can keep the default value `outlook.office365.com`.

> **Important:** This domain name is used by OpenAir Exchange Manager to detect whether a mailbox is hosted on-premises or in Exchange Online. If you are using Exchange Online to host mailboxes, **Azure Exchange Server Name** must match exactly the Exchange server value that OpenAir Exchange Manager receives from the Exchange Autodiscover service, or the Exchange server value you specify for individual users in OpenAir Exchange Setup (see Editing Exchange User Mailbox Information).

6. Click **OK**.







Connecting OpenAir Exchange Manager with On-Premise Active Directory Using LDAP

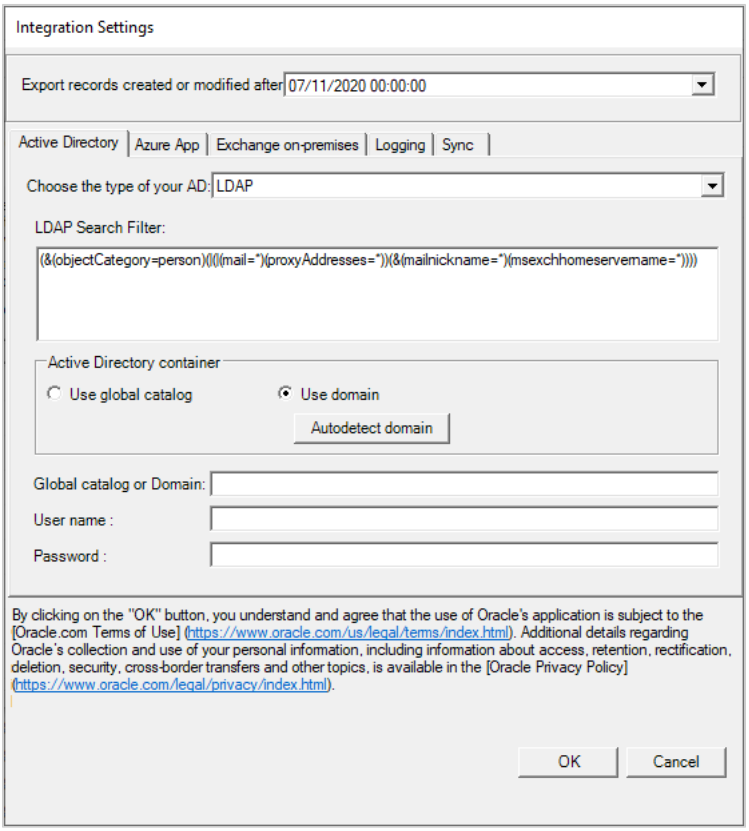
You can connect OpenAir Exchange Manager with on-premise Active Directory to source user information. In this case OpenAir Exchange Manager uses the LDAP protocol to access the user catalog in Active Directory.

To connect OpenAir Exchange Manager with on-premise Active Directory using LDAP:

1. In OpenAir Exchange Setup, go to Options > Integration Settings

   The Integration Settings window appears.

2. Click the **Active Directory** tab.



3. Click the **Choose the type of your AD** dropdown, and select **LDAP**.
4. (Optional) Enter an LDAP query in the **LDAP search filter** box . You can use the LDAP search filter for complex LDAP searches. Under normal circumstances, you should be able to keep the default value. You can use the LDAP search filter to query a single Active Directory domain or a global catalog.
5. In the **Active Director container** box, select one of the following options:
   - **Use global catalog** — Select this option if exchange users exist on more than one Exchange Server in the forest.
   - **Use domain** — Select this option to retrieve exchange users from the Active Directory domain.

> **Note:** If your organization is large and only a small group are OpenAir users,you should create a dedicated OpenAirUsers domain user group. The name of this group should be included in the LDAP search filter. The narrowed-down search restricts the global list of users to OpenAir users only. This simplifies the configuration and maintenance of the integration.

6. Enter a **Global catalog or Domain** — the domain name for the forest root or the Active Directory domain —, and an administrator **User name** and **Password**.

> **Tip:** You can click **Autodetect domain** to use the domain you are connected to.

7. Click **OK**.

Connecting OpenAir Exchange Manager with On-Premise Exchange Server

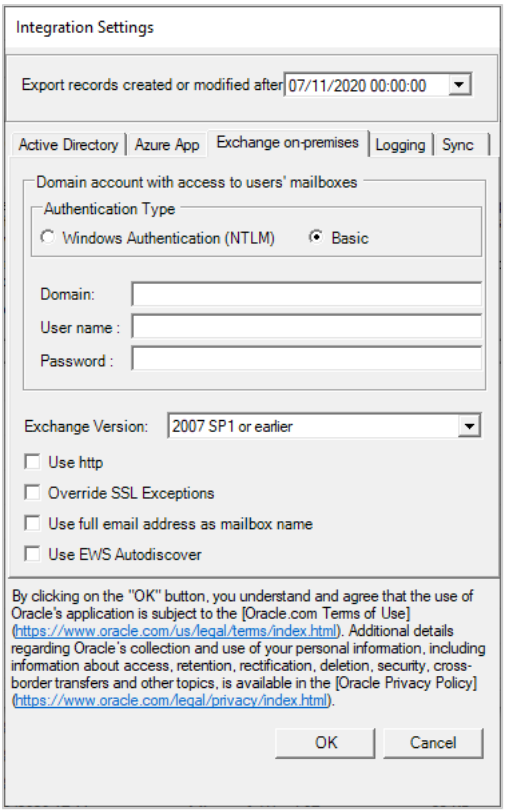
You can connect OpenAir Exchange Manager with an on-premise Exchange Server organization to export task assignments, bookings, and time-off requests from OpenAir to user mailboxes as calendar events.

To connect OpenAir Exchange Manager with on-premise Exchange Server:

1. In OpenAir Exchange Setup, go to Options > Integration Settings

   The Integration Settings window appears.

2. Click the **Exchange on-premises** tab.



3. Select the **Authentication Type** according to the Exchange Server Authentication configuration on Outlook Web Access (OWA). In most cases, you should be using Windows Integration Authentication.
4. (Optional) Enter a **Domain**.
5. Enter a **User name** (this can be a UPN name), and **Password**. The domain account must have read and write access permissions to the mailboxes of all users configured in the integration.
6. Click the **Exchange Version** dropdown and select one of the supported versions.

   Important: The OpenAir Exchange integration support access to user mailboxes across multiple instances of Exchange server running the same version. It does not allow access to user mailboxes across multiple instances of Exchange server with different versions.
7. Check the **Use http** box if the integration is local to the Exchange Server and the Exchange Server is not setup to accept https traffic.
8. Check the **Override SSL Exceptions** box if the SSL certificate is not signed, or if the domain name used by the integration does not match the domain in the SSL certificate.
9. Check the **Use full email address as mailbox name** box if applicable.
10. Check the **Use EWS Autodiscovery** box to Autodiscover the correct EWS endpoint for Exchange user mailboxes.

Note: Consider the following guidelines:

- Checking the **Use EWS Autodiscovery** box disables the **Use http** check box. This information is obtained directly by the Autodiscover service.
- By default, OpenAir Exchange Manager retrieves all Microsoft Exchange user accounts when using the Autodiscover service. This can take a very long time depending on the number of users. To save time, you can perform an incremental update and retrieve only the missing Microsoft Exchange user accounts. See Mapping OpenAir Users and Exchange User Mailboxes.
- If the Autodiscover service fails for any user, the details are logged and the process continues with the remaining users.
- If the EWS URL is changed on the Exchange server side the Update function must be executed again to set the value in the Exchange Manager database. See Mapping OpenAir Users and Exchange User Mailboxes.
- The Autodiscover service uses an email address to locate the configuration information that is needed to create a connection to an Exchange server. Only a credentialed user of the domain can use the Autodiscover service.

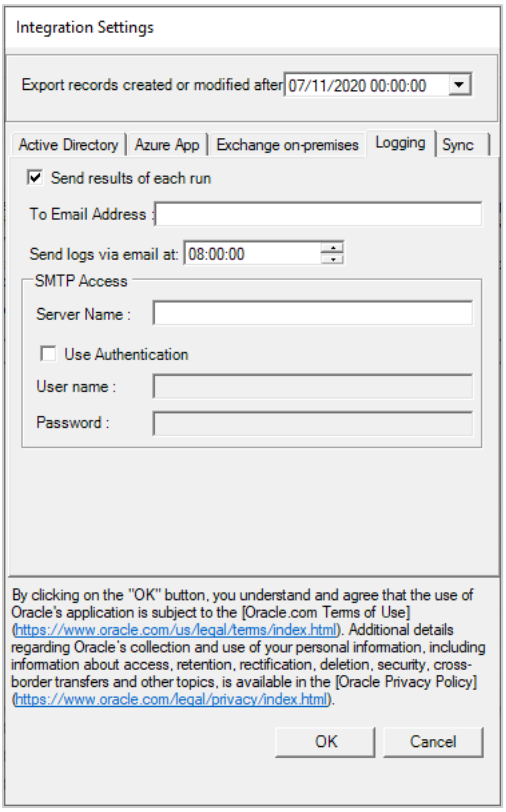
Sending OpenAir Exchange Integration Logs to a Designated Email Address

You can configure OpenAir Exchange Manager to send integration logs to a designated email address.

To send the OpenAir Exchange integration logs to a designated email address:

1. In OpenAir Exchange Setup, go to Options > Integration Settings

   The Integration Settings window appears.
2. Click the **Logging** tab.



3. Check the **Send results of each run** box if you want a log of each synchronization to be sent to the specified email address . A message is sent and if errors occur, the number of errors appears in the title of the message to alert the receiver.
4. Enter the email address in **To Email Address**.
5. Enter the SMTP **Server Name**.
6. Check the **Use Authentication** box and enter the **User name** and **Password** if you must authenticate to use the SMTP service to send email.
7. Click **OK**.

Configuring the Synchronization of OpenAir Bookings and Exchange Calendar Events

By default, OpenAir Exchange Manager only exports task assignments, bookings, and time off requests from OpenAir to user mailboxes as calendar events, and updates the calendar events in user mailboxes when changes are made to the task assignment, booking, or time off request in OpenAir.

You can configure OpenAir Exchange Manager to import calendar events created in the email client into OpenAir as bookings, and update these bookings when changes are made to the calendar events in the

email client. OpenAir Exchange Manager refers to this added functionality as the bidirectional integration or the synchronization of OpenAir bookings and Exchange calendar events.

Important: Review the following guidelines:

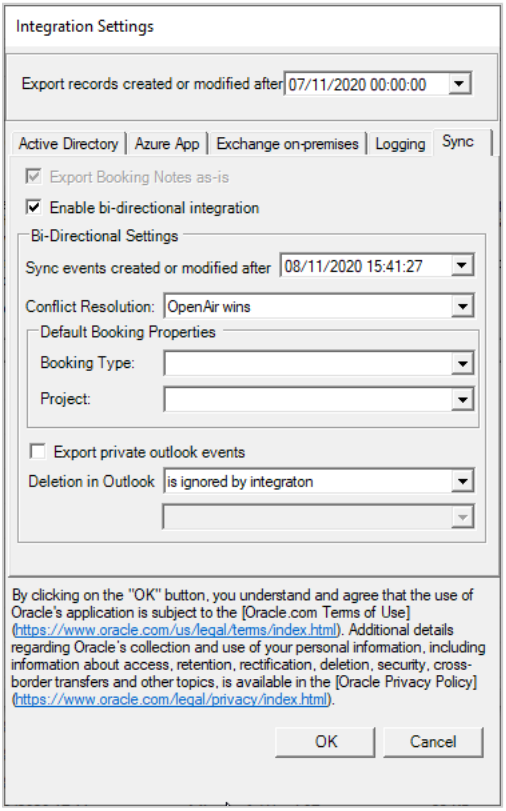
- The synchronization of OpenAir bookings and Exchange calendar events does not support recurring calendar events.
- All-day events are imported into OpenAir as bookings with 100% allocation.
- Events with a start tome and end time create bookings with a specific number of hours.

To configure the synchronization of OpenAir bookings and Exchange calendar events

1. In OpenAir Exchange Setup, go to Options > Integration Settings

   The Integration Settings window appears.

2. Click the **Sync** tab.



3. Check the **Export Booking Notes as-is** box if you want the body of the calendar event in the Exchange user mailbox to include only the content of the Notes field on the booking record and no other booking information. Otherwise, the body of the calendar event includes formatted information including the notes content and additional information.

> **Note:** The box is checked and read-only if you check the **Enable bi-directional integration**.

4. Check the **Enable bi-directional integration** box if you want to import calendar events created in the email client into OpenAir as bookings, and update these bookings when changes are made to the calendar events in the Exchange user mailbox.

   Additional settings become available on the Sync tab.

   > **Note:** Additional set up is required to enable the synchronization of OpenAir bookings and Exchange calendar events for each mapped user. For more information, see Mapping OpenAir Users and Exchange User Mailboxes.

5. Select a date from the **Sync events created or modified after** dropdown list. When running the OpenAir <> Exchange Integration, only the calendar events created or modified after this date are imported into OpenAir as bookings. This date is updated accordingly after each successful run of OpenAir Exchange Engine.
6. Select an option from the **Conflict Resolution** dropdown list. This determines which information should be used when the same information was changed both in the user mailbox calendar event and on the OpenAir booking record. Select **OpenAir wins** to prioritize the OpenAir booking information over the Exchange calendar event information, or **Microsoft Exchange Server wins** to prioritize the Exchange calendar event information over the OpenAir booking information.

   > **Note:** The OpenAir <> Exchange integration performs a field-level merge in both directions when different information (fields) were changed in the OpenAir booking and in the corresponding user mailbox calendar event. For example, if the body content (Notes) of the calendar event were modified in the email client and the booking start date was changed in OpenAir, the integration updates both the Notes on the OpenAir booking and the start date of the calendar event in the user mailbox. However, if the same information was modified on both sides, the integration resolves the conflict based on your conflict resolution preference.

7. Select the default **Booking Type** and the **Project** for booking records created when importing calendar events from Exchange user mailboxes.

   > **Note:** You can override the default Booking Type and Project for each user. See Setting the Default Booking Type and Project for Imported Bookings at the User Level.

   > **Tip:** Resize the Integration Settings window to show long text strings such as project names in the **Default Booking Properties** dropdown. The Integration Settings window can be resized if you are using OpenAir Exchange Manager 5.0 or later.

8. Check the **Export private Outlook events** box if you want calendar events marked as private to be imported into OpenAir.

   > **Note:** A private calendar event typically does not impact a project or billing. It indicates that the time is allocated and not available for assignment.
   >
   > This setting applies to all mapped users for whom the synchronization of OpenAir bookings and Exchange calendar events is enabled. It cannot be changed for individual users.

9. Select the action to be taken in OpenAir when a calendar event was deleted in the user mailbox from the **Deletion in Outlook** dropdown lists. The following options are available:
   - **is ignored by integration** — If a calendar event was deleted in the user mailbox, no action is taken. The integration does not delete OpenAir bookings.

- **deletes booking created from Outlook event** — If a booking was initially created from a calendar event and the calendar event is subsequently deleted, the integration deletes the matching booking in OpenAir. However, the integration does not delete bookings that were initially created in OpenAir.
- **deletes booking regardless of origin** — If a calendar event was deleted in the user mailbox and a corresponding booking exists in OpenAir, the booking is deleted even if the booking was initially created in OpenAir.
- **changes booking type to** — If a calendar event is deleted in the user mailbox, the integration sets the booking type to the selected value on the corresponding booking record in OpenAir. For example, you can use a booking type named "Deleted" to indicate that the calendar event corresponding to an OpenAir booking was deleted in the user mailbox.

Important: Review the following guidelines:

- When a booking is deleted in OpenAir, the integration does not delete the calendar event in the Exchange user mailbox. The calendar event must be deleted in the email client's calendar.

  Users should always delete calendar events in the email client's calendar and not the corresponding booking in OpenAir. This allows the OpenAir <> Exchange integration to perform the appropriate action as per the integration configuration.
- If the event was hard-deleted in the email client, the integration is not able to detect that deletion. Configure the retention policy so that deleted items are not removed from the store.

10. Click **OK**.
11. Enable the synchronization of OpenAir bookings and Exchange calendar events for individual users. You can do this using the mapping table in the main OpenAir Exchange Setup window. See Mapping OpenAir Users and Exchange User Mailboxes.

Important: The synchronization of OpenAir bookings and Exchange calendar events requires access rights to user mailboxes

- If you use Exchange Server 2010 or later version, configure Exchange impersonation for the user before enabling the synchronization of OpenAir bookings and Exchange calendar events for this user.

  For more information about configuring Exchange impersonation, see the vendor documentation.
- If you use Exchange 2007, grant Full Access permission for the user mailbox before enabling the synchronization of OpenAir bookings and Exchange calendar events for this user. For more information, see the vendor documentation.

Setting the Default Booking Type and Project for Imported Bookings at the User Level

When you configure the synchronization of OpenAir bookings and Exchange calendar events, you select the default **Booking Type** and **Project** for booking records created when importing calendar events from Exchange user mailboxes.

To be able to select the default booking type and project for imported bookings at the user level, create the following custom fields for the Employee record type in OpenAir. If you do not select a value at the user level in OpenAir, the default set in OpenAir Exchange Setup is used.

For more information about creating the custom fields, see the help topics Custom Fields and specifically the Pick List custom field.

Name	Type	List source	Description
exchDefault_booking_type	Pick List	Booking Type	Select the default **Booking type** for booking records created when importing calendar events from the Exchange user mailbox.
exchDefault_project	Pick List	Project	Select the default **Project** for booking records created when importing calendar events from the Exchange user mailbox.

Mapping OpenAir Users and Exchange User Mailboxes

After you have entered the necessary information to connect OpenAir Exchange Manager with your OpenAir account, Active Directory or Azure Active Directory, and Exchange Server or Online, you can map OpenAir employee (user) records with the corresponding Exchange user mailboxes.

To map OpenAir users and Microsoft Exchange users manually:

1. In OpenAir Exchange Setup, click File > **Update**.

   If user mailboxes are stored in on-premise Exchange Server organizations and you checked the **Use EWS Autodiscovery** box on the Integration Settings form, a dialog appears.

   - To retrieve only the missing Exchange user mailboxes, click **Yes**.
   - To retrieve all Exchange user mailboxes, click **No**.

   > **Note:** By default, OpenAir Exchange Manager fetches all Exchange user mailboxes when using the Autodiscover service to retrieve the correct EWS endpoint for each user. This can take a long time depending on the number of users. To save time, you can perform an incremental update and fetch only the missing Exchange user mailboxes. For more information about EWS endpoint autodiscovery, see Connecting OpenAir Exchange Manager with On-Premise Exchange Server.
   >
   > You can add and remove Exchange user mailboxes manually or import them from a CSV file at any time. See Editing Exchange User Mailbox Information.

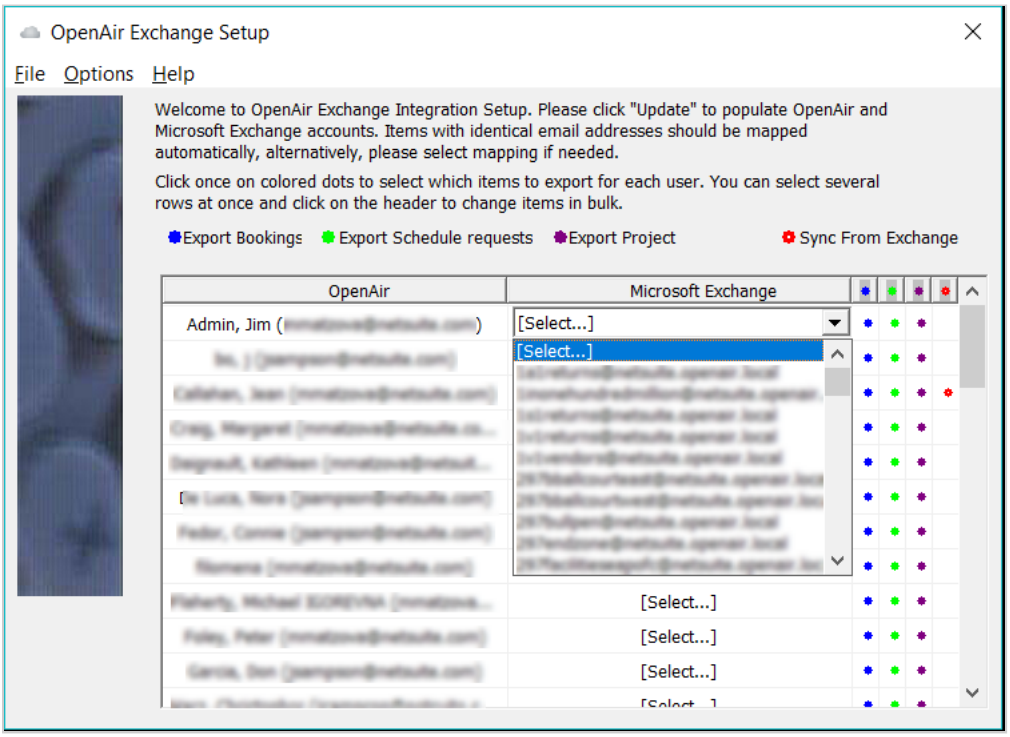
   The OpenAir Exchange Setup window lists OpenAir users and Exchange user mailboxes in the mapping table. OpenAir Exchange Setup maps OpenAir employee (user) records and

Exchange user mailboxes with a matching email address automatically. The mapping table shows `[Select ...]` under the **Microsoft Exchange** column when there are no user mailboxes matching the email address on the OpenAir employee (user) record.

2. Map OpenAir employee (user) records and Exchange user mailboxes that do not have a matching email address manually. Repeat the following steps for each row showing `[Select ...]` under the **Microsoft Exchange** column:

    a. Click **[Select ...]**.

    b. Select the user mailbox for the OpenAir user. The mapping table shows the name and email address recorded on the OpenAir employee (user) record under the **OpenAir** column.



3. For each OpenAir user – Exchange user mailbox pair, select which types of OpenAir transactions you want to export. If you have enabled the synchronization of OpenAir bookings and Exchange calendar events (bidirectional integration), choose whether to synchronize OpenAir bookings and Exchange calendar events for each user. Each export or synchronization feature is represented by a different color dot in the mapping table

    - A blue color dot indicates that OpenAir bookings for this user are exported to the Exchange user mailbox as calendar events.
    - A green color dot indicates that OpenAir time off requests (schedule requests) for this user are exported to the Exchange user mailbox as calendar events.
    - A purple color dot indicates that OpenAir task assignments for this user are exported to the Exchange user mailbox as calendar events.
    - A red color dot indicates that calendar events in the Exchange user mailbox are imported into OpenAir as bookings for this user if the synchronization of OpenAir bookings and Exchange calendar events (bidirectional integration) is enabled.

    Click under the color dot columns turn each integration option on or off for each user.

> **Tip:** Select multiple rows and click the column header to change the integration option for all selected users at the same time.

For more information about the bidirectional integration, see Configuring the Synchronization of OpenAir Bookings and Exchange Calendar Events.

4. Click File > **Save**.

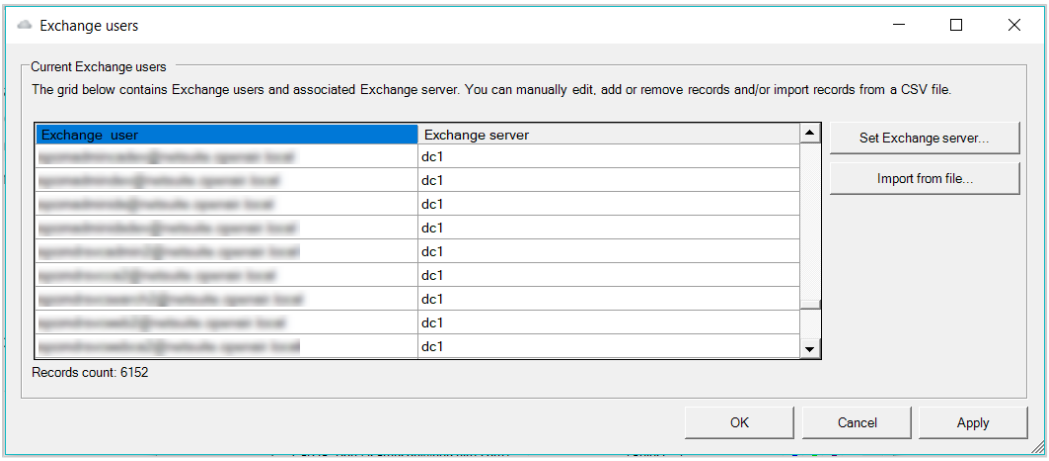
Editing Exchange User Mailbox Information

You can enter and modify the list of Exchange user mailboxes manually, including information about the Exchange organization each mailbox is stored in, or you can import the list from a CSV file.

To edit Exchange user mailbox information:

1. In OpenAir Exchange Setup, go to Options > Manually edit Exchange users.

   The Exchange users window appears. The table lists the Exchange user mailboxes available for mapping in OpenAir Exchange Setup and the Exchange organization each user mailbox is stored in.



2. To add new user mailboxes, do the following for each user mailbox you want to add:
   a. Scroll down to the bottom of the table.
   b. On an empty row, enter the email address associated with the user mailbox under **Exchange user** and the Exchange organization under **Exchange server**.
   c. Press Enter or click a cell in the next empty row.
3. To remove user mailboxes, do the following for each user mailbox you want to remove:
   1. Select the user mailbox.
   2. Press Delete.

> **Tip:** Press Shift and Ctrl keys to select multiple users.

4. To change the Exchange organization a user mailbox is stored in:
   a. Select the user mailbox.
   b. Click **Set Exchange server...**.

      A dialog appears.

c. Enter the new Exchange organization name.

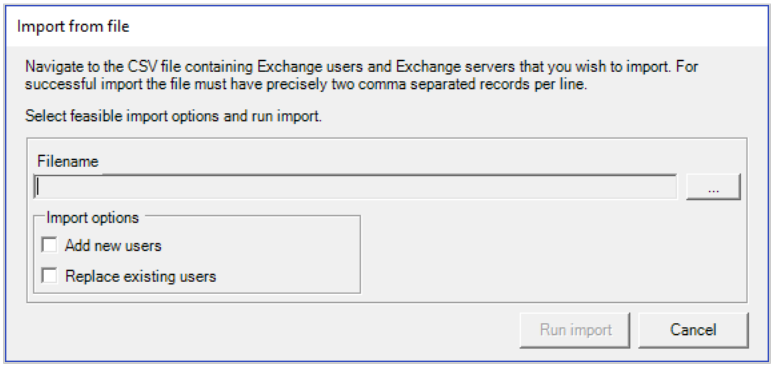
d. Click **OK**.

> **Tip:** Select multiple rows and click **Set Exchange server** to change the Exchange organization for several user mailboxes at the same time.

5. To import users from a CSV file:

   a. Click **Import from file**.

      The Import from file window appears.



   b. Click the Browse button (**...**).

      A file selection dialog appears.

   c. Select the CSV file containing the information to import. The CSV file must contain 2 columns separated by commas (,), and include plain data only without column headers. The following example shows the correct CSV format:

```
jadmin@example.com,corp-exch-win2012-1
admin@example.com,corp-exch-win2012-1
mcollins@example.com,corp-exch-win2012-2
```

   d. Do one of the following:

      - Check the **Add new users** box to import Exchange user mailboxes from the CSV file only if the email addresses corresponding to these user mailboxes are not already listed in OpenAir Exchange Setup.
      - Check the **Replace existing users** box to replace already listed Exchange user mailboxes with information from the CSV file.
      - Check both boxes to add new user mailboxes and replace existing user mailboxes.

   e. Click **Run import**.

6. Click **OK** to validate the changes and return to the main OpenAir Exchange setup window.

7. Click File > **Save**.

Mapping OpenAir Booking Type to Exchange Calendar Event "Show As" Designation

By default, when you export bookings from OpenAir to Exchange user mailboxes, the resulting calendar event will show as **Free** time. You can map booking types in OpenAir to specific "Show As" designation

for the calendar event in Exchange user mailboxes so that the resulting calendar event shows as Free, Tentative, Busy, or Out of Office, depending on the booking type. You can also exclude bookings from the export, depending on the booking type.

To be able to map the booking type to Exchange calendar event "Show as" designation, create the following custom field for the Booking Type record type in OpenAir. If you do not select a value for a booking type in OpenAir, the calendar event shows as **Free** time.

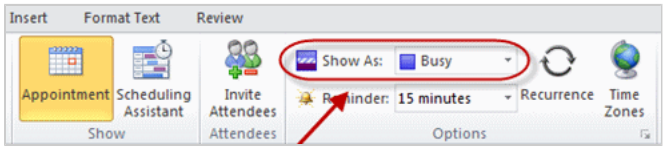
After you create the custom field, go to Administration > Application Settings > Resources > Booking Types and edit each booking type record, selecting a "Show as" designation for the exported calendar events or `Do not export`.

For more information about creating the custom fields, see the help topics Custom Fields and specifically the Dropdown custom field.

Name	Type	Values	Description
`calendar_export_type`	Dropdown	▪ `Set event time as free` ▪ `Set event time as tentative` ▪ `Set event time as busy` ▪ `Set event time as out of office` ▪ `Do not export`	Select the **Show as** designation for calendar events created or modified when exporting bookings from OpenAir to Exchange user mailboxes.

Note: Review the following guidelines:

- Calendar events show as **Busy** only if the booking has a Start time and End time defined in OpenAir.
- The dropdown option values must be exactly as listed above.
- Check the **Required** box only if you require that each booking type to be mapped to a "Show as" designation or excluded from the export.



OpenAir Exchange Manager Registry Settings

Additional configuration settings are available in the Windows Registry.

The following registry keys are available to set the time delay (in seconds) between one synchronization loop and the next.

- **LoopWaitTimeCriticalError** (default: 600 seconds) — Loop delay (in seconds) when the last synchronization run returned a critical error (A critical error may be returned if, for example, either Microsoft Exchange Server or OpenAir are not available).

- **LoopWaitTimeNoRecordsToSync** (default: 300 seconds) — Loop delay (in seconds) when no new records were found for mapped user during the last synchronization run.
- **LoopWaitTimeRecordsPendingSync** (default: 5 seconds) — Loop delay (in seconds) when there are still records waiting to be synchronized between OpenAir and Microsoft Exchange after the last synchronization run.

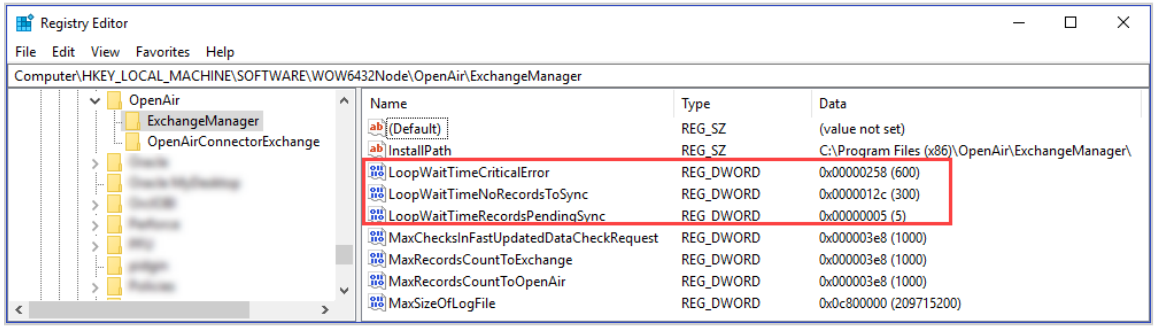
The following registry key is available to set the maximum size for the OpenAir Exchange Engine log file.

- **MaxSizeOfLogFile** (default: 209715200 bytes) — Maximum Size (in bytes) of the Exchange Engine log file.

> **Note:** If the log file exceeds the maximum size specified, a new log file is created.

The following registry key is available to set the number of simultaneous processes used to autodiscover the correct Exchange Web Services endpoint for Exchange users configured for integration.

- **AutodiscoverProcessCount** (default: 3) — Number of simultaneous processes used to autodiscover the Exchange Web Services endpoints. Increasing this setting can speed up the operation but also can lead to an increased load on the Exchange server, and timeout failure for some users. Use this registry setting with caution.



To edit OpenAir Exchange Manager Registry Settings

1. Open the Windows Run command (shortcut: Ctrl + R).
2. Enter regedit and click **Open**. The Registry Editor opens.
3. Go to **Computer\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\OpenAir\ExchangeManager**.
4. For each key you want to edit:
   a. Double-click the name of the key. A window appear letting you edit the value.
   b. Enter the **value data**.
   c. Click **OK**.
5. Go to File > Exit to exit the Registry Editor.

> **Important:** Care should be taken when editing the Registry. You should not change any other settings than those listed above.

Running the OpenAir Exchange Integration

After you set up the OpenAir <> Exchange integration, you can run OpenAir Exchange Engine to export task assignments, bookings, and time off requests (schedule requests) from OpenAir to Exchange user mailboxes as calendar events and import calendar events from Exchange user mailboxes to OpenAir as bookings if the bidirectional integration is enabled.

If you use OpenAir Exchange Manager 5.0 or later version, you can run OpenAir Exchange Engine as a Windows service. See Running OpenAir Exchange Engine as a Windows Service.

> **Important:** You should not use Task Scheduler to run OpenAir Exchange Manager 4.0 or later version.

OpenAir Exchange Engine uses the following process:

1. OpenAir Exchange Engine checks for new information in OpenAir and fetches all new information from OpenAir if found.
2. OpenAir Exchange Engine sends the new information from OpenAir to Exchange.
3. OpenAir Exchange Engine waits for a response from Exchange and updates OpenAir with the information received.

You can view console logs to check the status of your OpenAir <> Exchange integration at any time. See Viewing Console Logs for the OpenAir Exchange Integration.

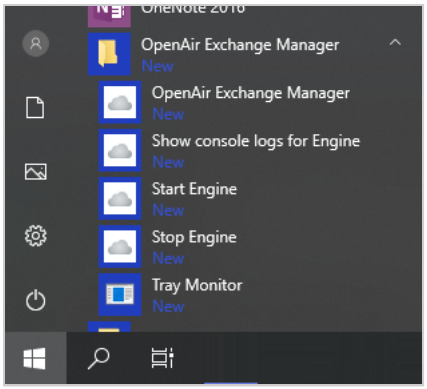
Running OpenAir Exchange Engine

To run OpenAir Exchange Engine you must have:

- Administrator role in Windows or Windows Server.
- Read and write access to all Exchange user mailboxes the integration is configured to export to and import from

To run OpenAir Exchange Engine:

1. Launch OpenAir Exchange Setup. To do so, do one of the following:
   - Go to the application installation directory (the default installation directory is `C:\Program Files (x86)\OpenAir\ExchangeManager`). Click **OpenAirExchangeEngine.exe**.
   - Go to the Windows start menu, scroll down to OpenAir Exchange Manager, expand the program folder and click **Start Engine**.



A command line window opens and runs the OpenAir Exchange Engine as it has been configured. See Setting Up the OpenAir Exchange Integration.

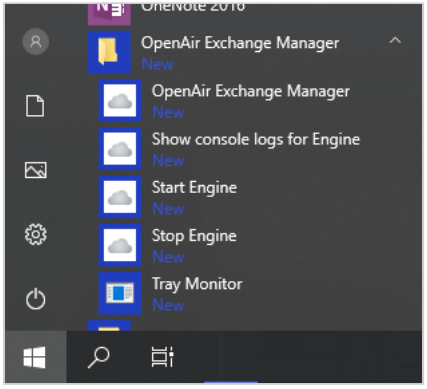
2. OpenAir Exchange Engine runs continuously in the background after you launch it. To stop OpenAir Exchange Engine, go to the Windows start menu, scroll down to OpenAir Exchange Manager, expand the program folder and click **Stop Engine**.

Running OpenAir Exchange Engine as a Windows Service

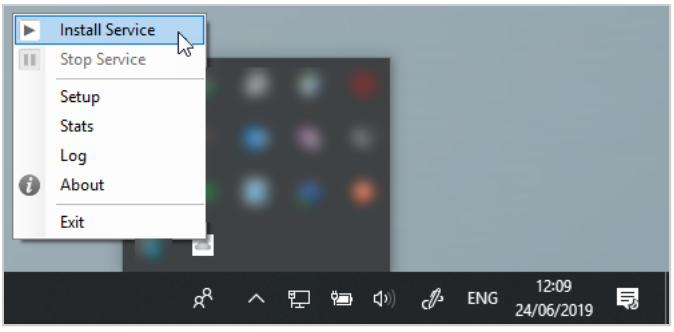
If you use OpenAir Exchange Manager 5.0 or later version, you can run OpenAir Exchange Engine as a Windows service.

To run OpenAir Exchange Engine as a Windows service

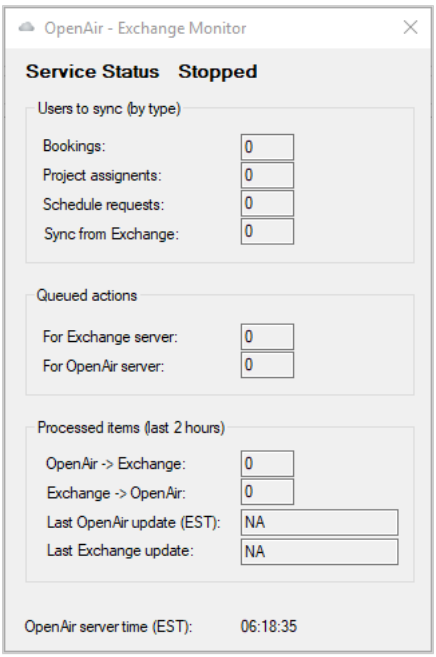
1. Launch the OpenAir Exchange Tray Monitor. To do so, do one of the following:
   - Go to the application installation directory (the default installation directory is `C:\Program Files (x86)\OpenAir\ExchangeManager`). Click **OpenAirExchangeTrayMonitor.exe**.
   - Go to the Windows start menu, scroll down to OpenAir Exchange Manager, expand the program folder and click **Tray Monitor**.



2. Go to the taskbar system tray, locate and the right-click the OpenAir Exchange Tray Monitor icon and click **Install Service**.



3. After the service installation completes, right-click the OpenAir Exchange Tray Monitor icon and click **Start Service** or **Stop Service** to control the service, or click **Stats** to open the OpenAir Exchange Monitor window and review the status and activity of the OpenAir Exchange Windows service.



When OpenAir Exchange Manager 5.0 or later is installed, the following shortcuts are available from the Windows start menu:

- OpenAir Exchange Manager — Opens the Exchange Manager interface
- Start Engine — Runs the OpenAir Exchange Engine in the background
- Stop Engine — Stops the OpenAir Exchange Engine
- Show console logs for Engine – Opens a log file which describes Exchange Engine's current progress if running, or a notification that it is not currently running.
- Tray Monitor — Starts the taskbar System Tray utility to control and monitor the OpenAir Exchange Engine Windows service.

Viewing Console Logs for the OpenAir Exchange Integration

You can view console logs to check the status of your OpenAir <> Exchange integration at any time and audit changes to the integration configuration.

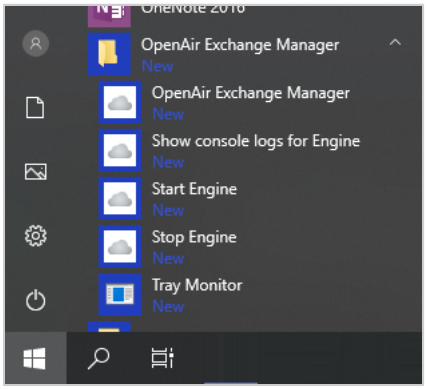
Two logs are available for the

- The **Configuration** log lists all setup and configuration actions performed using OpenAir Exchange Setup (`OpenAirExchange.log`).
- The **Engine** log lists all OpenAir Exchange Engine actions with dates and times. (`OpenAirExchangeEngine.log`).

You should attach a copy of both log files when contacting OpenAir Customer Support to report an issue with OpenAir Exchange Manager. See Troubleshooting OpenAir Exchange Manager.

To view console logs for the OpenAir <> Exchange integration:

1. Do one of the following:
   - Go to the application installation directory (the default installation directory is `C:\Program Files (x86)\OpenAir\ExchangeManager`) and double-click the log file to open it in your default text editor.
   - Go to the Windows start menu, scroll down to OpenAir Exchange Manager, expand the program folder and click **Show console logs for Engine** to view the Engine log.



   - In OpenAir Exchange Setup, go to Help > Display Log > [*Choose the log*].
   - Right-click the OpenAir Exchange Tray Monitor icon and click **Log** to view the Engine log.

Troubleshooting OpenAir Exchange Manager

The first step in troubleshooting is to ensure that you have installed the latest version of the OpenAir Exchange Manager so that you have the most recent enhancements, fixes, and features. Refer to Installing, Updating and Uninstalling OpenAir Exchange Manager for more information and considerations for updating.

If you are experiencing difficulties with OpenAir Exchange Manager or would like to enable an optional feature for your OpenAir account, create a support case. Our Customer Support staff and engineers will work with you to find a solution to your problem. See Creating a Support Case.

Before you create a support case, review the list of common errors and their solutions.

Important: Make sure you attach the OpenAir Exchange Manager log file (compressed as a ZIP file) when creating a support case. For more information about accessing the log files, see Viewing Console Logs for the OpenAir Exchange Integration.

Troubleshooting Common Problems

The following table lists common errors or scenarios and their solutions. Use this table in addition to the OpenAir Integration Manager log file to try and troubleshoot your integration before you contact OpenAir Customer Support.

Error / Scenario	Solution
Error "`The remote server returned an error: (403) Forbidden`"	Verify that the version of Exchange Server specified in OpenAir Exchange Setup matches the version of Exchange Server you are running on your mail server. See Connecting OpenAir Exchange Manager with On-Premise Exchange Server.
Error: "`Exchange Server doesn't support the requested version`"	Verify that the version of Exchange Server specified in OpenAir Exchange Setup matches the version of Exchange Server you are running on your mail server. See Connecting OpenAir Exchange Manager with On-Premise Exchange Server.
Error: "`Exception: The handle is invalid`" when exporting bookings from OpenAir to user mailboxes stored in an Exchange Online organization.	Verify your Exchange Online credentials. In particular, verify that the client secret is still valid. This error is often due to an expired client secret. See Connecting OpenAir Exchange Manager with Azure Active Directory or Exchange Online and Registering OpenAir Exchange Manager With Microsoft Identity Platform.
Error: "`Could not lock file`" when running OpenAir Exchange Setup **.**	Log into Windows as an administrator, and run OpenAir Exchange Setup again, or right-click the shortcut and choose **Run as administrator**.
Error: "`Status: Access is not enabled. Please contact your OpenAir account administrator to enable this functionality.`" when clicking File > Update in OpenAir Exchange Setup	Contact OpenAir Customer Support and request the following for your account: ▪ Disable and enable again Access to OpenAir Exchange Manager. ▪ Enable and disable again Access to OpenAir Outlook Connector.
The Exchange user mailbox dropdown list does not include the user mailbox I want to map to the OpenAir user record.	Verify that the user mailbox is not already mapped to another OpenAir user record.

Creating a Support Case

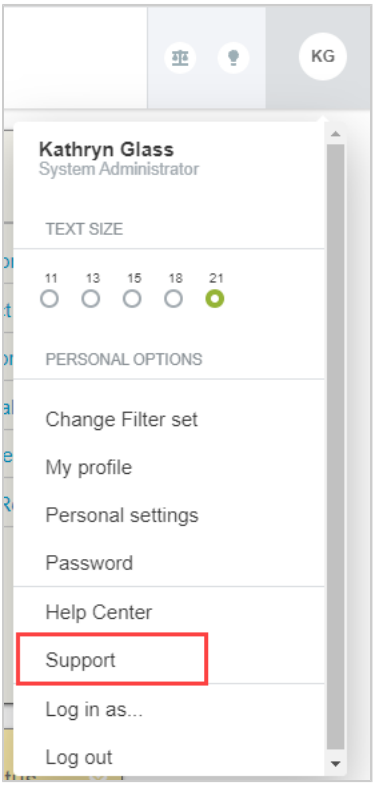
If you are experiencing difficulties with OpenAir or would like to enable an optional feature, go to SuiteAnswers through your OpenAir account and create a support case.

Our support staff and engineers will work with you to find a solution to your problem.

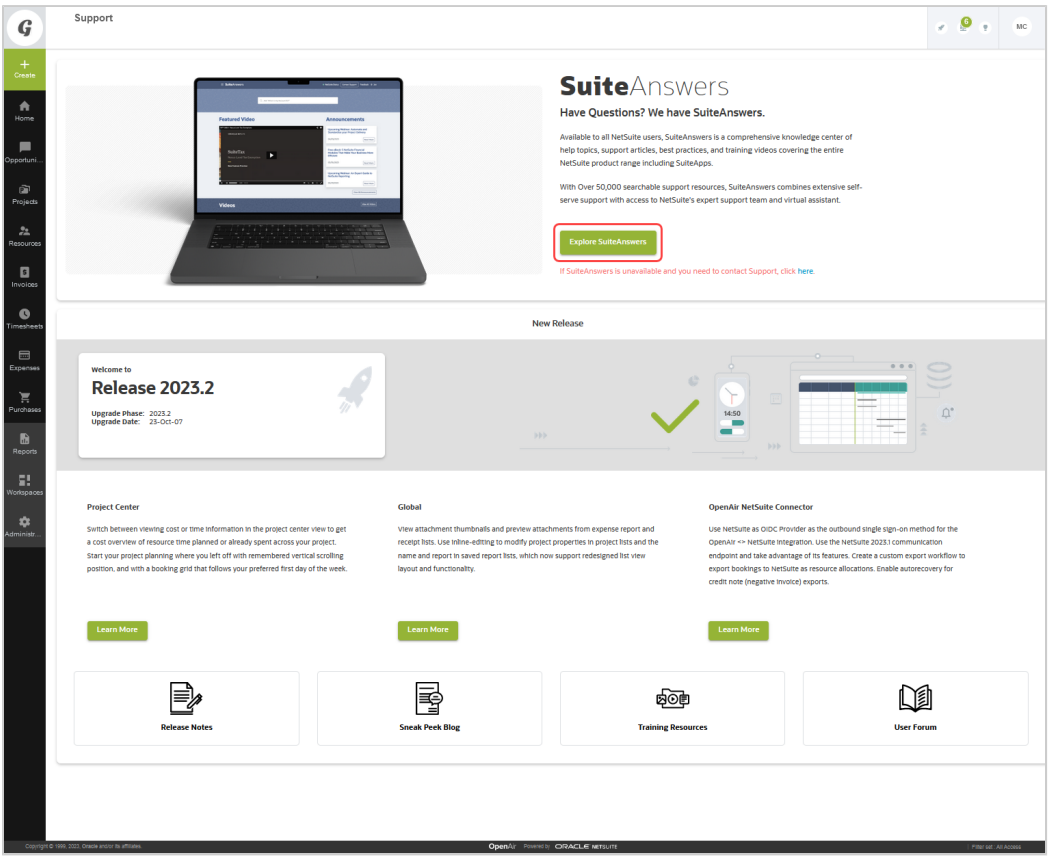
Important: As a part of the support case creation process you will be presented with existing answers that may solve your problem. Take a moment to view the available answers before proceeding to create a support case.

To create a support case:

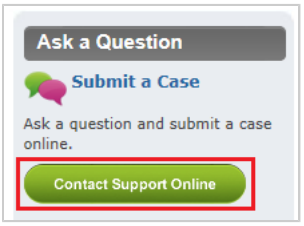
1. Log in to your OpenAir account and select **Support** from the User Center menu.



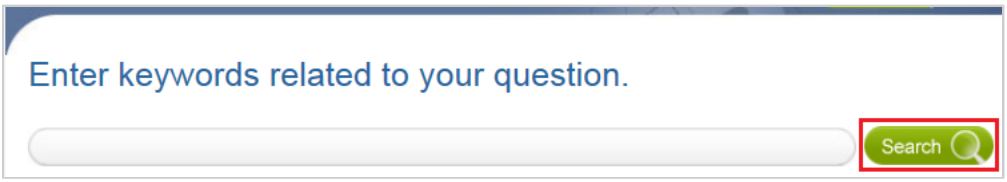
2. Click **Go to SuiteAnswers**.



3. On the OpenAir SuiteAnswers website, click **Contact Support Online**.

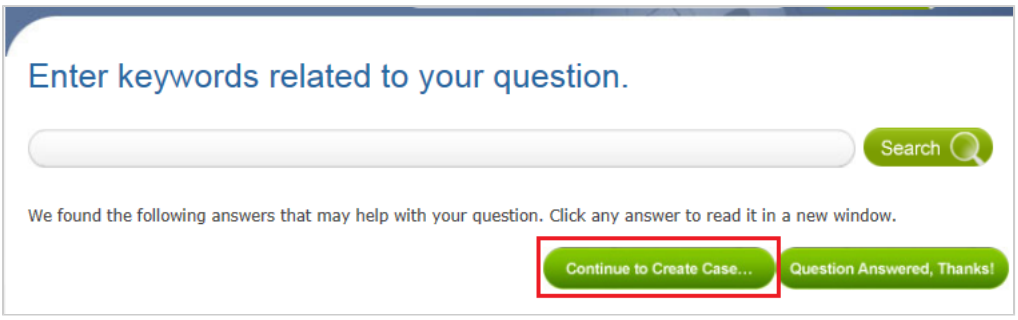


4. Enter keywords corresponding to the question or problem you want to resolve and click **Search**.



Note: If you do not have a question but need a feature enabled, for example, click **Search**.

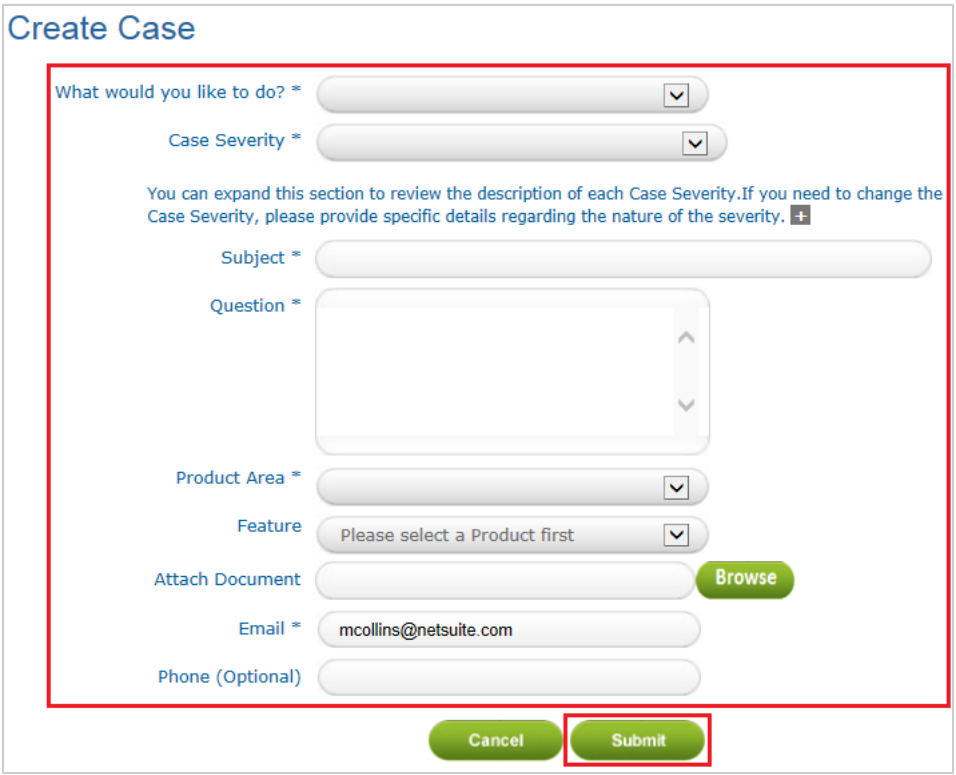
5. Oftentimes, the answer to your question will be displayed. If you still want to create a support case, click **Continue to Create Case**.



6. Fill out the **Create Case** form and then click **Submit**. You will receive an email confirmation with your support case reference (OpenAir Customer Care #).

Important: Review the **Case severity** definitions and always use the appropriate case severity when submitting a case. See Case Severity Definitions.

Using the appropriate case severity helps OpenAir Customer Support prioritize between cases. Otherwise, OpenAir Customer Support need to evaluate the true urgency of each case, which slows down the response time to all cases.



Note: An asterisk * indicates a required field.

Case Severity Definitions

Review the following Case severity definitions and always use the appropriate case severity when submitting a case.

Using the appropriate case severity helps OpenAir Customer Support prioritize between cases. Otherwise, OpenAir Customer Support need to evaluate the true urgency of each case, which slows down the response time to all cases.

- **C1 – Critical / Business Down**: Production use of the service is stopped or so severely impacted that the company cannot reasonably continue business operations.
- **C2 – Urgent**: One or more important functions of the service are unavailable with no acceptable alternative solution. Customer's implementation or production use of the service is continuing but there is a serious impact on business operations.
- **C3 – How-to / Non-urgent Questions**: Important service features are unavailable but an alternative solution is available, or less significant Service features are unavailable with no reasonable alternative solution. There is minor loss of business operation functionality or an impact on implementation resources.

  > **Note:** Use the case severity `C3 – How-to / Non-urgent Questions` when submitting a case to request a sandbox refresh.

- **C4 – Enhancement / Non-tech Support**: An incident that has a minimal impact on business operations or basic functionality of the service.