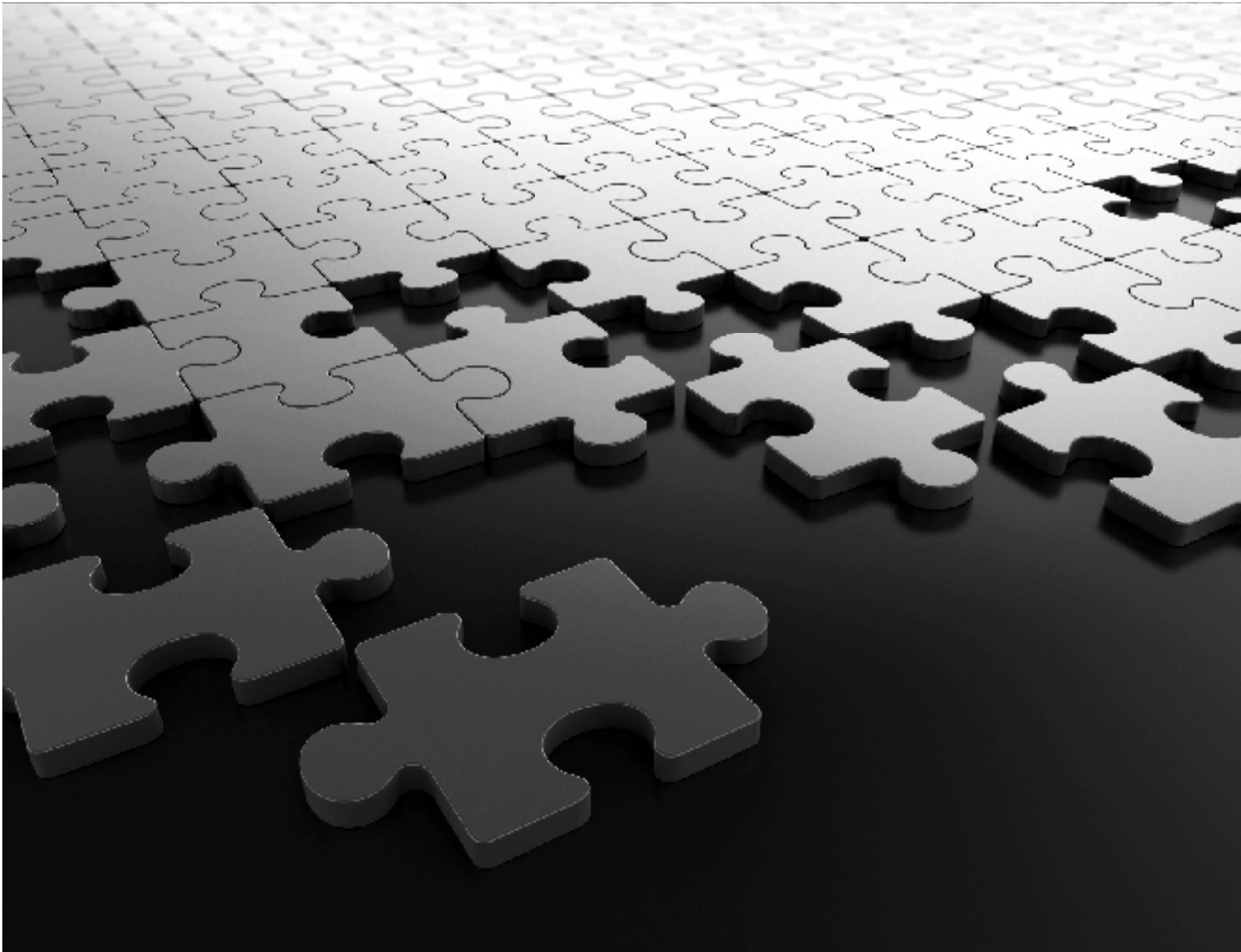
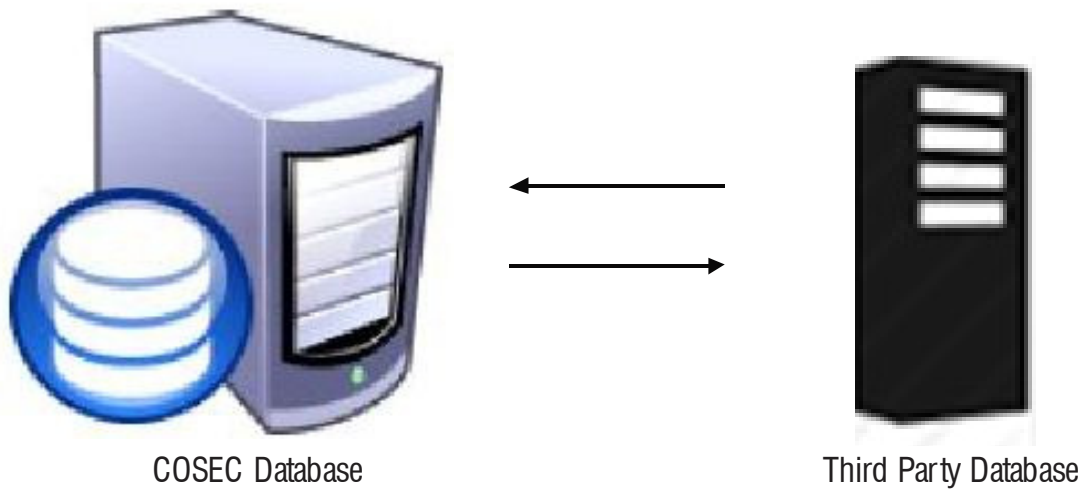


COSEC INTEGRATE

User Manual



COSEC INTEGRATE User Manual



Documentation Disclaimer

Matrix Comsec reserves the right to make changes in the design or components of the product as engineering and manufacturing may warrant. Specifications are subject to change without notice.

This is a general documentation for all variants of the product. The product may not support all the features and facilities described in the documentation.

Information in this documentation may change from time to time. Matrix Comsec reserves the right to revise information in this publication for any reason without prior notice. Matrix Comsec makes no warranties with respect to this documentation and disclaims any implied warranties. While every precaution has been taken in the preparation of this system manual, Matrix Comsec assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

Neither Matrix Comsec nor its affiliates shall be liable to the buyer of this product or third parties for damages, losses, costs or expenses incurred by the buyer or third parties as a result of: accident, misuse or abuse of this product or unauthorized modifications, repairs or alterations to this product or failure to strictly comply with Matrix Comsec operating and maintenance instructions.

Warranty

For product registration and warranty related details visit us at:

<https://www.matrixcomsec.com/warranty/#access-control-time-attendance>

Copyright

All rights reserved. No part of this system manual may be copied or reproduced in any form or by any means without the prior written consent of Matrix Comsec.

Version 19

Release date: November 14, 2024

Contents

<i>Introduction</i>	<i>1</i>
<i>Export to MS SQL/ORACLE</i>	<i>4</i>
<i>Export to Postgre Server</i>	<i>21</i>
<i>Export to CSV</i>	<i>24</i>
<i>Export to MySQL</i>	<i>38</i>
<i>Export to Text</i>	<i>45</i>
<i>Export to DB2</i>	<i>63</i>
<i>Export to People Works</i>	<i>68</i>
<i>Export FP Template to File</i>	<i>75</i>
<i>Custom Export- FP Template</i>	<i>84</i>
<i>Export to Progress OpenEdge</i>	<i>88</i>
<i>Import from MS SQL/Oracle/Postgre</i>	<i>96</i>
<i>Import from Active Directory</i>	<i>111</i>
<i>Importing Data from a Customized SAP</i>	<i>115</i>
<i>Import Events</i>	<i>117</i>
<i>Import from My SQL</i>	<i>125</i>
<i>Import from Progress OpenEdge</i>	<i>128</i>
<i>Import from Excel</i>	<i>134</i>
<i>Integrate Alert</i>	<i>138</i>
<i>BACnet Server Configuration</i>	<i>140</i>

Introduction

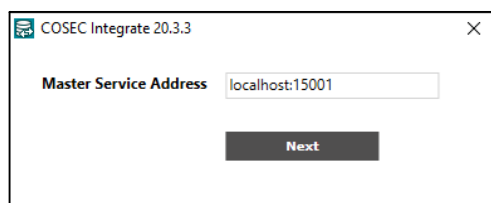
The COSEC INTEGRATE module enables the administrator to configure the following functionalities.

- Export data from the COSEC database to a third party MS SQL or Oracle database.
- Import user data from external data sources like MSSQL, Oracle, Postgre and the Microsoft Active Directory.
- Import User data from customized SAP table in MSSQL or Oracle.
- Export Device data and event logs to predefined tables in Postgre database.
- Import event data from 3rd party database (MS SQL and Oracle).
- Configure BACnet Server parameters to enable integration of BACnet with COSEC.

The COSEC installer utility has the COSEC INTEGRATE module option which needs to be selected for this application to be installed.

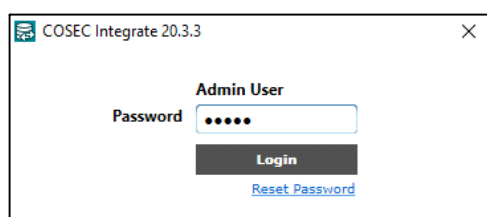
To access this application, double click on the COSEC INTEGRATE Module icon on the computer desktop.

Enter the Master Service Address and click Next.



The screenshot shows a window titled "COSEC Integrate 20.3.3". Inside, there is a label "Master Service Address" followed by a text input field containing "localhost:15001". Below the input field is a dark button labeled "Next".

Enter the password of the admin user and click Login.



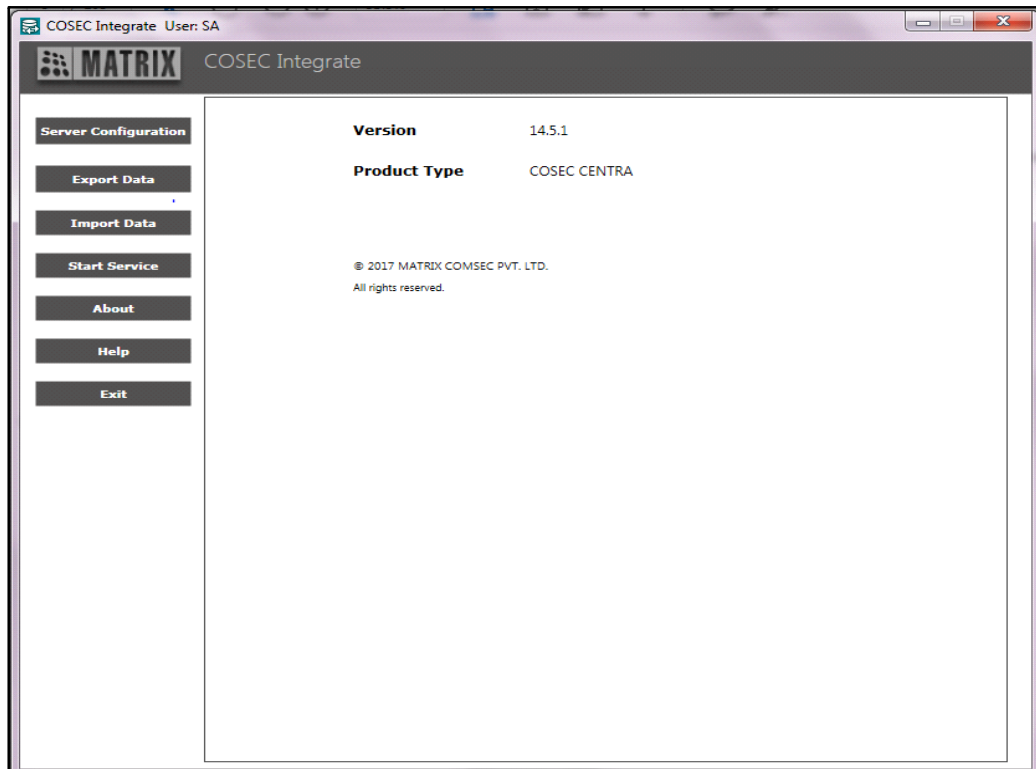
The screenshot shows a window titled "COSEC Integrate 20.3.3". Inside, there is a label "Admin User" above a "Password" label. The password is entered as five dots in a text input field. Below the input field is a dark button labeled "Login". Below the "Login" button is a blue link labeled "Reset Password".

The Reset Password option enables the user to reset the password in the event of the admin user forgetting the set password. Contact the authorized dealer or Matrix support for the reset code.



For COSEC Integrate to work properly, it must be ensured that actual DB fields as well as their renamed versions (if any, i.e. if DB field is renamed with an alias during export template configuration) are both included in the template configuration. This shall be applicable to all exports.

Click on the **Login** button after entering the password. The COSEC INTEGRATE home page appears as shown.



The COSEC INTEGRATE service needs to be stopped prior to starting the configuration of the various COSEC INTEGRATE parameters. Click on the **Stop Service** button as shown.



To know about the Export and Import from other database and BACnet Server Configuration click on the following links.

[“Export to MS SQL/ORACLE”](#)

[“Export to MySQL”](#)

[“Export to CSV”](#)

[“Export to Text”](#)

[“Export to Postgre Server”](#)

[“Export to DB2”](#)

[“Export to People Works”](#)

[“Export FP Template to File”](#)

[“Custom Export- FP Template”](#)

[“Export to Progress OpenEdge”](#)

[“Import from MS SQL/Oracle/Postgre”](#)

[“Import from My SQL”](#)

[“Importing Data from a Customized SAP”](#)

[“Import from Active Directory”](#)

[“Import Events”](#)

“Import from Progress OpenEdge”
“BACnet Server Configuration”

Export to MS SQL/ORACLE

The application allows the administrator to map the data fields of the COSEC application database to the data fields of another SQL/Oracle database.



Integrate supports:

- *Export to Oracle from version Oracle 10g to Oracle 23AI.*
- *Export to MS SQL from version SQL Server 2005 to SQL Server 2022*

SQL Server 2005 and SQL Server 2008 R2:

- *for installation you need Windows 7 or below versions.*
- *to establish remote connections in these versions from the PC in which Integrate is installed, make sure you have enabled TLS 1.0 and 1.1 (that is, Best Practices settings).*

Server Configuration

Click on the **Server Configuration** button to configure the Web server and Destination database for Export and Source database for Import.

Depending on the Integration mode selected, you must configure **Destination Database/ Destination Location/ Source Database**.

Select the **Export to MS SQL Server** option in the **Integration Mode** field.

Click on the **Edit** button.

In the **COSEC Web Server** section:

- Specify the web URL of the API service of the COSEC WEB application as shown above.
- Enter the User Name and Password of the system administrator (sa) as set in the COSEC WEB application.

In the **Destination Database** Server section:

- The **Database Type** will be SQL SERVER.
- **Server:** Enter the database server name in the following format - **Database server name\Instance Name**
e.g. dbserver\sqlexpress.
- **Database Name:** Specify the database name of the destination database as per the site settings. Eg: COSECDB_V13R2 is the destination database which is newly created from Database Utility. You can export the data to this database.



For newly created database, ensure that you have set the password in COSEC Web application. Then only Test connection from COSEC Integrate with Web server will be successful.

- **User Name:** Specify the database administrator ID in this field. This is the user name which you have set while installing SQL Server Management Studio in your computer.
- **Password:** Enter the password of the Database administrator as per the site settings. This is the password which you have set while installing SQL Server Management Studio in your computer.

The **Test Connection** button is provided to test the connections with the web server as well as the SQL Server database.

Click on **Save** once done.

In the event of selecting the **Export to Oracle Server** option in the **Integration Mode** field, specify the Oracle server destination address as well as the user name and the password (case-sensitive for Oracle Server) in the respective fields as shown.

Test the connection and Save the configuration.

Export Data Configuration

This option enables the Admin user to map the fields from the COSEC database tables to fields in a third party database. Click on the **Export Data** button. The following page appears.

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

Export

Database: MS SQL Server

Source Data Template: Template_Daily

Table-Field Mapping

Destination Table: Mx_ATDEventTrn **Select Table**

Source Field: ACTIVEFLAG | NUMERIC | 1 | 0

Destination Field: BLECode | numeric | 4 | 0

Add

Source Field	Data Type	Length	Decima	Destination Field	Data Type	Length	Decima	Clear
--------------	-----------	--------	--------	-------------------	-----------	--------	--------	-------

Schedule

Add Edit Save Manual Transfer Cancel Filter

The COSEC INTEGRATE application provides four data templates in line with the default **Database Views** as shown. The COSEC System provides the following four Database views which would provide the relevant field options to be mapped with the fields of a destination database.

- Monthly Attendance Summary, for details refer to [“Monthly Attendance Summary”](#)
- Daily Attendance Detail, for details refer to [“Daily Attendance Detail”](#)
- Attendance Events, for details refer to [“Attendance Events or Access Control Events -Schedule”](#)
- Access Control Events, for details refer to [“Attendance Events or Access Control Events -Schedule”](#)

The following templates can be configured from COSEC Web which can be exported to other database.

- First and Last Attendance Events
- Daily Attendance Template1
- Daily Cafeteria Events
- Monthly Cafeteria Summary
- Monthly Job Summary
- User Details

For details, refer [“Custom Template - User Details Template-Schedule”](#)

Each of the above database views would provide the relevant fields whose values can be exported from the COSEC database. Select the required data template and click on the **Edit** button.

Export

The **Destination Table** can be selected by clicking the **Select Table** button. Table Selection window appears as shown below. The desired table can be selected by scrolling or searching.

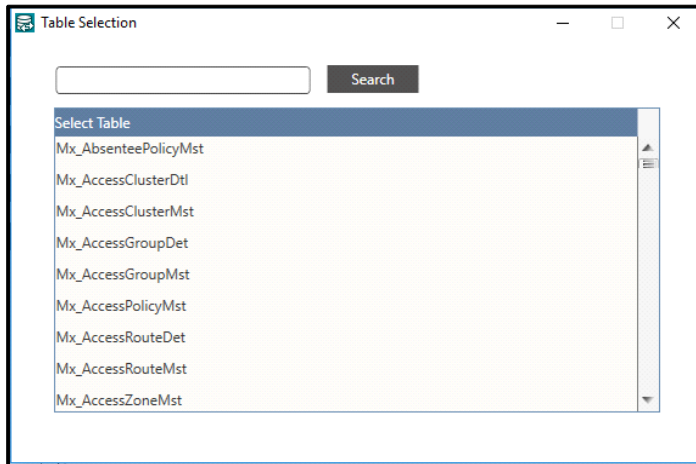
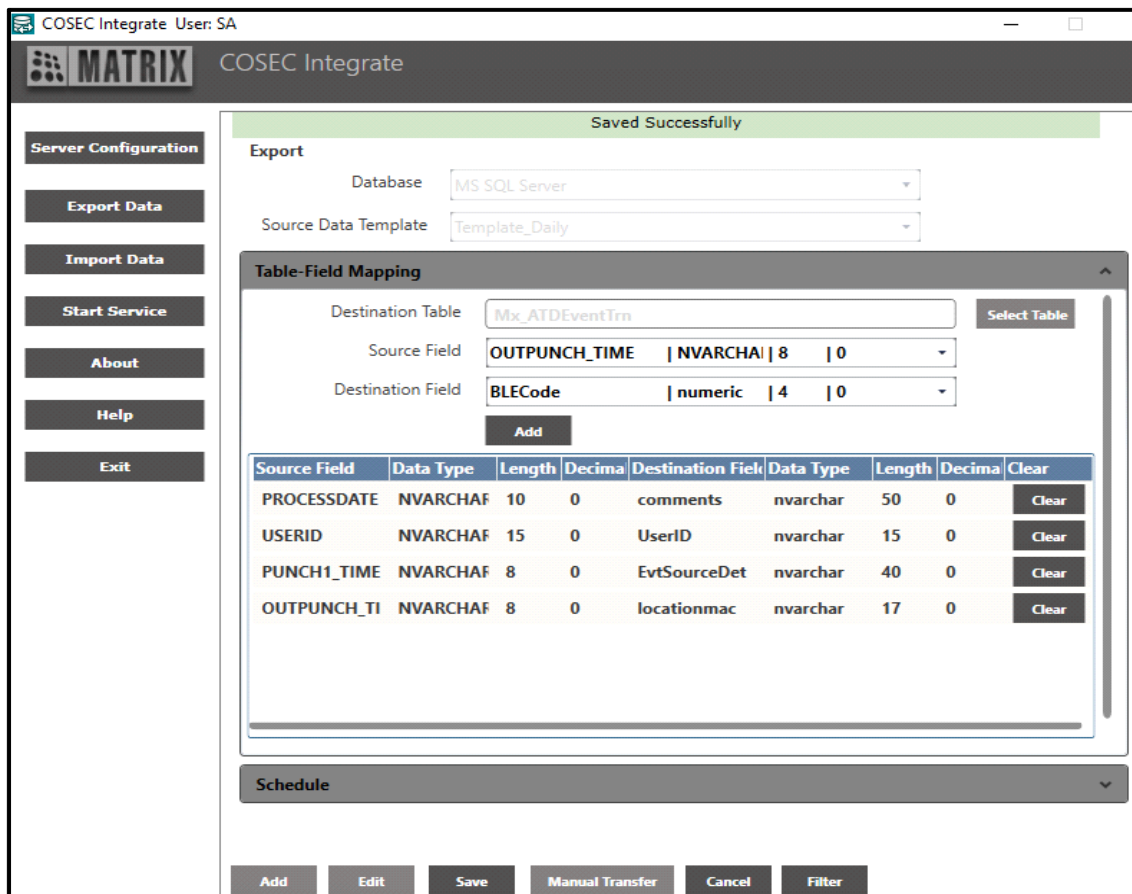


Table Field Mapping

Now the Admin user can start the mapping of the fields from the source database to that of the destination database as shown.



- Select the **Source field** from the COSEC database.
- Select the **Destination field** from the drop down options to map with the source field.
- Click on the **Add** button. The mapped fields will be visible in the bottom grid.



In the case of Attendance Events and Access Control Events the user needs to map the UserID and the EventDateTime_D source fields to fields in the destination table.

Map the UserID, PMonth and Pyear source fields to appropriate fields in the destination table in the case of the Monthly Attendance Summary.

Map the UserID and ProcessDate_D source fields to appropriate fields in the destination table in the case of the Daily Attendance Detail.

The mapping between the following data types is allowed. Only a warning message is shown in case of mismatch in data types.

Source data type	Destination data type
Text (char, varchar,varchar2...)	Number (numeric, int, bigint, smallint, float, number, double,int32...)
Text	Datetime formats(depending on the date format configured for DB server. If format matches, the record will be accepted)
Number	Text
Date Time	Text



The mapping from Number and Date time to Date time and Number respectively is restricted.

Schedule

The **Schedule** section enables the Admin user to schedule the data export process. The schedule option vary based on the selected Source Data Template.

Daily Attendance Detail

The **Daily Attendance detail** will have the following options as shown.

Export

Database: MS SQL Server

Source Data Template: API_Template_Daily

Table-Field Mapping

Schedule

Active: ☒

Enable Filter: ☐

Schedule: Daily Filter Date By: Process Date

Every: 1 Day of the Month

Run time (HH:MM):

Retry Count: 1

Retry Interval: 1 Hour

Daily Attendance Of: ☒ Previous Day ☐ Current Day

Enable Alerts For: ☒ Success ☒ Failure

Add Edit Save Manual Transfer Cancel Filter

- Check the **Active** box to enable the schedule.
- The **Enable Filter** option is provided to enable the administrator to filter the events/users whose data is to be exported. Check this check box and click on the **Filter** button.

The Event Selection and User Selection Filters pop-up appears.



Event Selection is applicable when Template selected is API_Template_ATDEvents or API_Template_ACSEvents or Template_ATDEvents or Template_ACSEvents.

Event Selection

☒ All
☐ Allowed Events
☐ Denied Events

User Selection

☐ All
☐ Select Groups
☒ Select Users

Group

user

Search

user

Search

<input type="checkbox"/> Select	ID	user
<input type="checkbox"/>	2678	Parth Kapadia
<input type="checkbox"/>	2Person	2Person
<input type="checkbox"/>	2Person01	2Person01

Apply

Cancel

- **User Selection:** Select the desired option — All, Select Groups or Select Users.
 - If you select **All**, data of all the users will be exported.
 - If you select **Selected Groups**, the list of Groups appear in the grid. Select the check boxes of the desired Groups whose data is to be exported.
 - If you select **Selected Users**, the list of Users appear in the grid. Select the check boxes of the desired Users whose data is to be exported.
- Click **Apply** to save the configurations done or click **Cancel** to discard. The Filter pop-up closes.
- In **Schedule**, select the desired option for data transfer— **Daily** or **Monthly**.

- On selection of **Monthly** option, user can set data transfer process to run only once in a month. By default, **Monthly** option would be selected.

Export

Database
MS SQL Server

Source Data Template
API_Template_Daily

Table-Field Mapping

Schedule

Active
☐

Enable Filter
☐

Schedule
Monthly
Filter Date By
Process Date

Every
1
Day of the Month

Run time (HH:MM)

Retry Count
1

Retry Interval
1
Hour

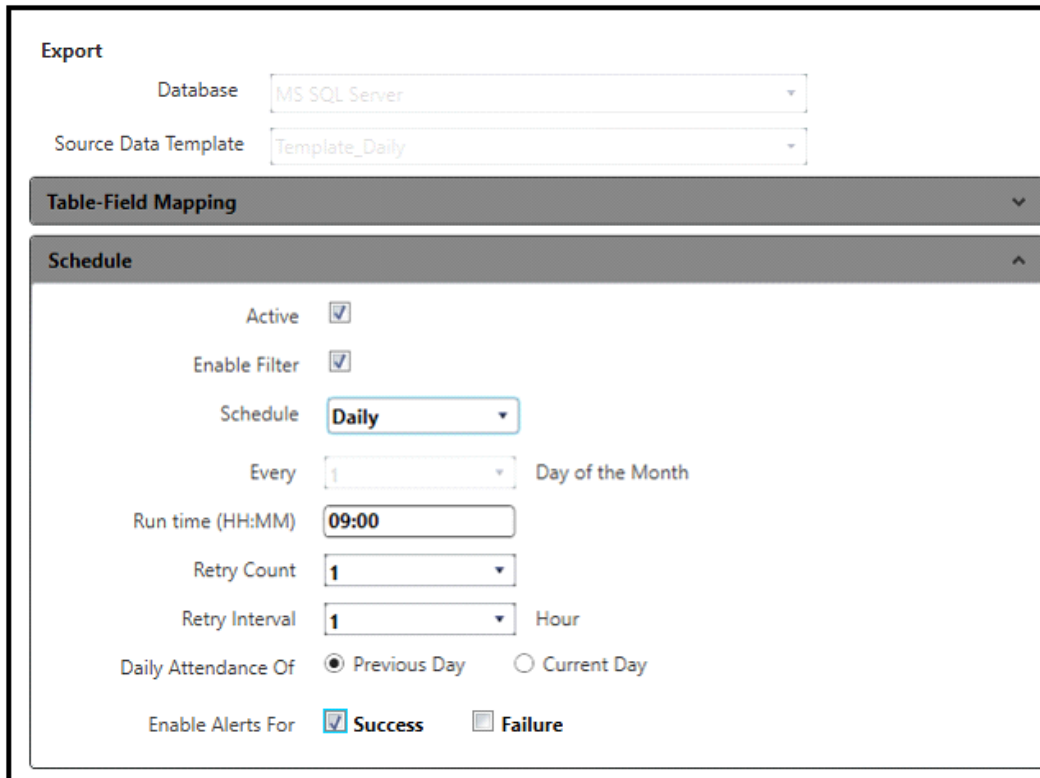
Attendance Period
1
Day of
Current Month
To
1
Day of
Current Month

Enable Alerts For
☐ Success
☐ Failure

Add
Edit
Save
Manual Transfer
Cancel
Filter

- If you select Monthly, configure the **Attendance Period**, that is, the starting and the ending day of the attendance period for which the data is to be exported. Select the from Day of the Current/Previous Month to the Day of the Current/Previous Month

- When selecting **Daily** option for Schedule, the options appears as shown.



Export

Database: MS SQL Server

Source Data Template: Template_Daily

Table-Field Mapping

Schedule

Active: ☒

Enable Filter: ☒

Schedule: Daily

Every: 1 Day of the Month

Run time (HH:MM): 09:00

Retry Count: 1

Retry Interval: 1 Hour

Daily Attendance Of: ☒ Previous Day ☐ Current Day

Enable Alerts For: ☒ Success ☒ Failure

- If you select **Daily**, configure the **Daily Attendance of**. Configure to transfer data for either **Previous Day** attendance data or **Current Day** attendance data with respect to schedule run day.
- In **Every __ Day of the Month**, specify the day of the month on which the export process is to be run.
- Specify the **Run time** in HH:MM format when the export process is to be run.
- Set the **Retry Count** to retry again for export in case of export failure.
- Set the **Retry Interval** in hours from the drop down list. This parameter specifies the time period between successive retries.
- Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the check boxes as per your requirement:

Select **Success** check box to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** check box to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer, that is, if both the above check boxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

Monthly Attendance Summary

The **Monthly Attendance Summary** will have the following unique options as shown.

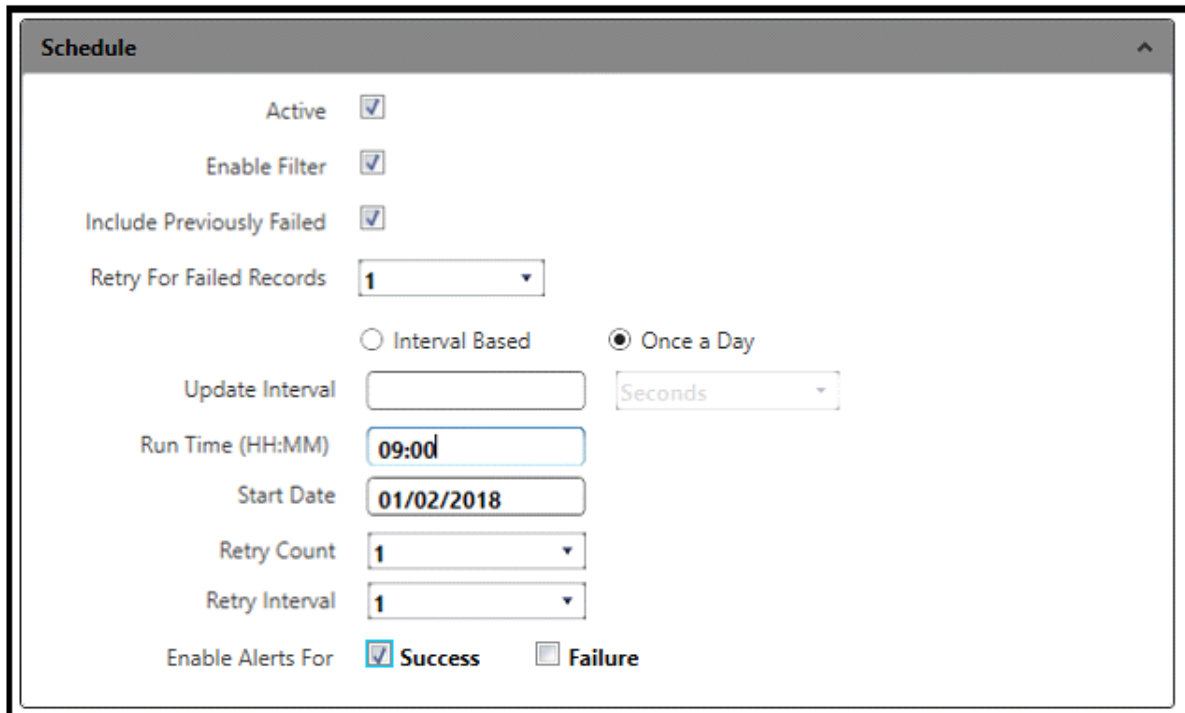
A screenshot of a web-based configuration form for 'Monthly Attendance Summary'. The form is divided into sections: 'Export' at the top with 'Database' (MS SQL Server) and 'Source Data Template' (Template_Monthly) dropdowns; 'Table-Field Mapping' (collapsed); and 'Schedule' (expanded). The 'Schedule' section contains: 'Active' (checked), 'Enable Filter' (checked), 'Every' (1) 'Day of the Month', 'Run time (HH:MM)' (10:00), 'Retry Count' (1), 'Retry Interval' (1) 'Hour', 'Attendance Period' (Previous Month), and 'Enable Alerts For' with checkboxes for 'Success' (checked) and 'Failure' (unchecked).

- The configuration of the parameters is similar to Daily Attendance Details, except the below mentioned parameter.
- Select the **Attendance Period** for which the monthly Attendance summary data is to be exported. The Admin user can select either the **Previous Month** or **Current Month** option.

For details of other parameters, refer to ["Daily Attendance Detail"](#).

Attendance Events or Access Control Events -Schedule

The following schedule options will be available.



The screenshot shows a 'Schedule' configuration window with the following settings:

- Active:** ☒
- Enable Filter:** ☒
- Include Previously Failed:** ☒
- Retry For Failed Records:**
- Update Interval:**
- Run Time (HH:MM):**
- Start Date:**
- Retry Count:**
- Retry Interval:**
- Enable Alerts For:** ☒ **Success** ☐ **Failure**

- Select the **Active** check box to enable the schedule.
- The **Enable Filter** option is provided to enable the administrator to filter the events/users whose data is to be exported. Check this check box and click on the **Filter** button.

The Event Selection and User Selection Filters pop-up appears.



Event Selection is applicable when Template selected is API_Template_ATDEvents or API_Template_ACSEvents or Template_ATDEvents or Template_ACSEvents.

The screenshot shows a 'Filter' pop-up window with the following sections:

- Event Selection:** Three radio buttons: ☒ All, ☐ Allowed Events, ☐ Denied Events.
- User Selection:** Three radio buttons: ☐ All, ☐ Select Groups, ☒ Select Users.
- Group:** A dropdown menu currently showing 'user'.
- Search:** A dropdown menu currently showing 'user', followed by an empty text input field and a 'Search' button.
- User List Table:** A table with columns 'Select', 'ID', and 'user'.

Select	ID	user
<input type="checkbox"/>	2678	Parth Kapadia
<input type="checkbox"/>	2Person	2Person
<input type="checkbox"/>	2Person01	2Person01
- Buttons:** 'Apply' and 'Cancel' buttons at the bottom.

- **Event Selection:** Select the desired option — All, Allowed Events or Denied Events.
 - If you select **Both**, all Allowed and Denied events will be exported.
 - If you select **Allowed Events**, only Allowed events will be exported.
 - If you select **Denied Events**, only Denied events will be exported.
- **User Selection:** Select the desired option — All, Select Groups or Select Users.
 - If you select **All**, data of all the users will be exported.
 - If you select **Selected Groups**, the list of Groups appear in the grid. Select the check boxes of the desired Groups whose data is to be exported.
 - If you select **Selected Users**, the list of Users appear in the grid. Select the check boxes of the desired Users whose data is to be exported.
- Click **Apply** to save the configurations done or click **Cancel** to discard. The Filter pop-up closes.
- **Include Previously Failed Records:** By enabling this check box, the records which are failed to export previously will be exported in the next retry.

The IN-OUT Attendance events and Access Control events of user which are failed to export during database connection error will be exported when database connection is restored.



Only failed records due to Destination Table connectivity issue should be considered for this functionality.

- **Retry for Failed Records:** Select the number of times for which the failed records will be tried again for export.
- Select the desired option for the frequency at which the application will update the destination database — Interval Based, Once a Day

Interval Based

If you select this option configure the **Update Interval** and **Start Date**.

- Specify the **Update Interval** in seconds, minutes or hours to define the frequency at which the application will update the destination database.

Once a Day

If you select this option configure the **Run Time**, **Retry Count** and **Retry Interval**.

- Select the **Once a Day** option to schedule the export once every day at a scheduled **Run Time (HH:MM)**.
- Specify the **Start Date** from which the export process is to be initiated. The records from the start date to the present date will be exported.
- Specify the **Retry count** as the number of times for which system will try again to export the failed records with an interval gap of hours set in **Retry Interval**.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the check boxes as per your requirement:

Select **Success** check box to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** check box to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer, that is, if both the above check boxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Custom Template - User Details Template-Schedule

This is not a default template. Custom Templates can be added from the COSEC Web. These are then visible in the Integrate. To add Custom Templates refer to the User Guide, Admin Module > System Utilities > Export Data.

Schedule

Active ☐

Enable Filter ☐

Include Previously Failed ☐

Retry For Failed Records

Export Modified Only ☐

Export Update Time ☐

Set Deleted User Flag ☐

☒ Interval Based ☐ Once a Day

Update Interval

Run Time (HH:MM)

Retry Count

Retry Interval

Enable Alerts For ☐ Success ☐ Failure

Add Edit Save Manual Transfer Cancel Filter

- Check the **Active** box to enable the schedule.
- The **Enable Filter** option is provided to enable the administrator to filter the events/users whose data is to be exported. Check this check box and click on the **Filter** button.

The Event Selection and User Selection Filters pop-up appears.



Event Selection is applicable when Template selected is API_Template_ATDEvents or API_Template_ACSEvents or Template_ATDEvents or Template_ACSEvents.

Event Selection

☒ All
 ☐ Allowed Events
 ☐ Denied Events

User Selection

☐ All
 ☐ Select Groups
 ☒ Select Users

Group:

Search:

<input type="checkbox"/> Select	ID	user
<input type="checkbox"/>	2678	Parth Kapadia
<input type="checkbox"/>	2Person	2Person
<input type="checkbox"/>	2Person01	2Person01

- **User Selection:** Select the desired option — All, Select Groups or Select Users.
 - If you select **All**, data of all the users will be exported.
 - If you select **Selected Groups**, the list of Groups appear in the grid. Select the check boxes of the desired Groups whose data is to be exported.
 - If you select **Selected Users**, the list of Users appear in the grid. Select the check boxes of the desired Users whose data is to be exported.
- Click **Apply** to save the configurations done or click **Cancel** to discard. The Filter pop-up closes.
- **Include Previously Failed:** By enabling this check box, the records which are failed to export previously will be exported in the next retry.
- **Retry for Failed Records:** Select the number of times for which the failed records will be tried again for export.
- **Export Modified Only:** Enabling this check box will export only the changed or updated user details. Eg: at 10:00 hrs, details of 100 users is exported. At 14:00 hrs (interval based export) the change in 20 users is found. So details of only 20 users will be exported.
- **Export Update Time:** When the export of only modified records is done, then the time at which modified records were exported will get updated for the respective records in destination fields. Eg: For the modified 20 users, the timing will be displayed as 14:00 hours in the destination table..

- You can select the field from the drop down list where the export timing of modified records will be updated. Eg: Suppose you select Edatetime from the options, then the date time of export process will be displayed in Edatetime column of destination server.
- **Set Deleted User Flag:** Suppose the user is deleted from the COSEC system. But that user is already exported in the destination table. So by enabling this you can set the flag to 1 for the respective deleted users when next export will be done.
 - Select the field where the flag is to be updated.
- Select the desired option for the frequency at which the application will update the destination database — Interval Based, Once a Day

Interval Based

If you select this option configure the **Update Interval** and **Start Date**.

- Specify the **Update Interval** in seconds, minutes or hours to define the frequency at which the application will update the destination database.

Once a Day

If you select this option configure the **Run Time**, **Retry Count** and **Retry Interval**.

- Select the **Once a Day** option to schedule the export once every day at a scheduled **Run Time (HH:MM)**.
- Specify the **Retry count** as the number of times for which system will try again to export the failed records with an interval gap of hours set in **Retry Interval**.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the check boxes as per your requirement:

Select **Success** check box to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** check box to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer, that is, if both the above check boxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

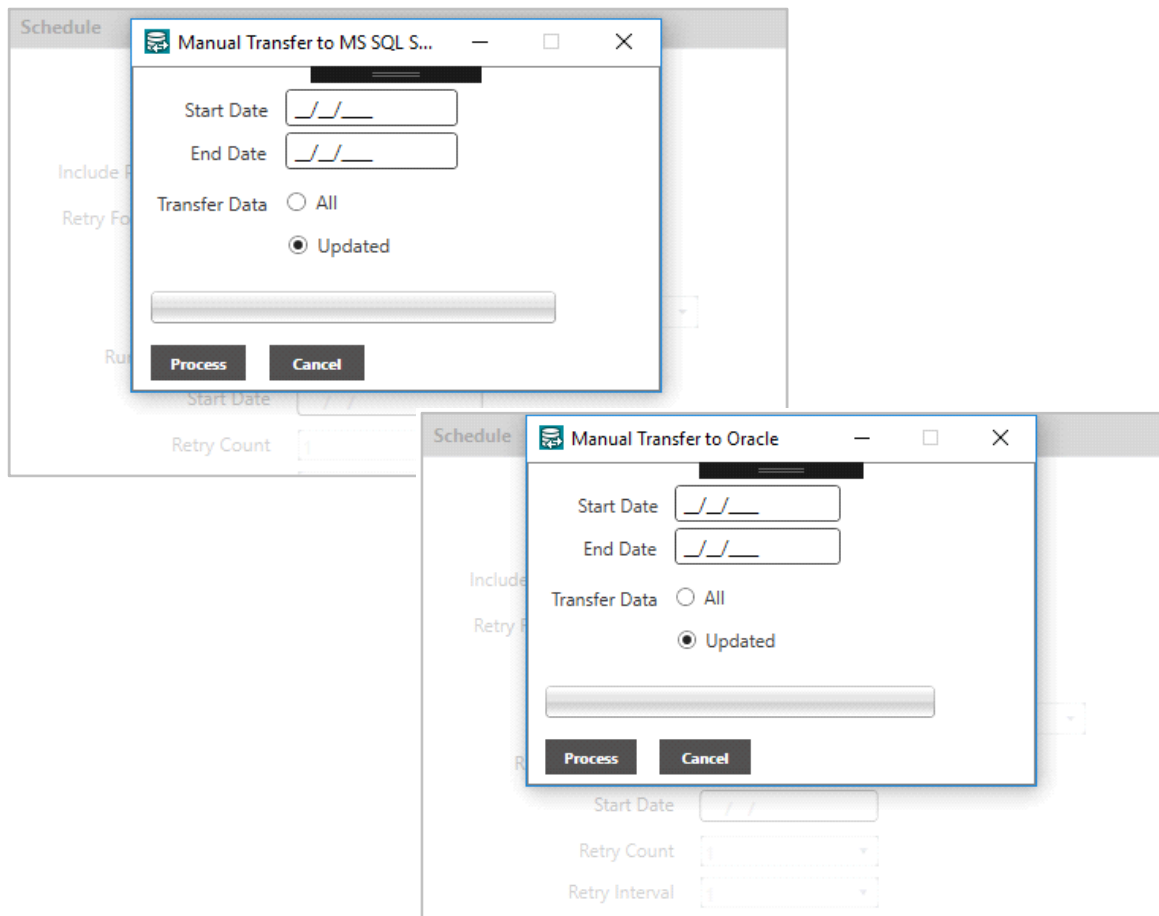
Manual Transfer

The Manual Transfer option provides the Admin user the flexibility to export data of a specific time period as and when required. In order to access this functionality click on the **Stop Service** button to stop the COSEC INTEGRATE service.

Click the **Export Data** button.

On the **Export Data** page, edit and save the export settings as per your requirement.

Click the **Manual Transfer** button. The following window appears for *Manual Transfer to MS SQL Server* and for *Oracle Manual Transfer to Oracle*.



Enter the **Start Date** and **End Date**.

Select the **Transfer Data** mode— **All** or **Updated**.

All: All the past data falling within the selected date range will be transferred.

Updated: All the updated data falling within the selected date range will be transferred.

Click the **Process** button. The data of the specified time period will be exported to the destination table.

Export to Postgre Server

The application allows the administrator to export device data and event logs from the COSEC application database to predefined tables of the Postgre SQL database. The Postgre SQL database needs to have the following tables in the database:

- **devices**
- **device logs**

The devices table holds the basic data of the COSEC devices like deviceid, serial number (MAC address), ipaddress. This information can be obtained by viewing the ControllerList view of the COSEC database. The MAC addresses however can be directly obtained from the devices. This table holds information on the last ping time and the last log download date for each of the devices.

The device logs table receives the event logs from the COSEC database received from each of the COSEC devices.

Server Configuration

In order to configure this functionality click on the **Server Configuration** button. Select the **Export to Postgre SQL (CGG)** option in the **Integration Mode** field.



Integrate supports Export to Postgre SQL from PostgreSQL 10.23 to PostgreSQL 12.18

Click on **Edit**. The following page appears.

In the **COSEC Web Server** section:

- Specify the web url of the api service of the COSEC WEB application as shown.
- Enter the User Name and Password of the sa user as set in the COSEC WEB application.

In the **Postgre SQL** section:

- **Server:** Enter the Postgre database server IP address or its network name.
- **Port:** Specify the TCP connection port as configured in the Postgre database server.
- **Database Name:** Specify the destination database name of the Postgre database.
- **User Name:** Specify the database owner ID in this field.
- **Password:** Enter the password of the Database owner as per the site settings.

The **Test Connection** button is provided to test the connections with the web server as well as the Postgre SQL Server database.

Click on **Save** once done.

The administrator can now start the COSEC INTEGRATE service by clicking on the **Start Service** button as explained earlier.

The Admin can now perform Export Data Configuration which is same as MSSQL/Oracle. For more information, refer "[Export Data Configuration](#)" of MSSQL/Oracle Server.

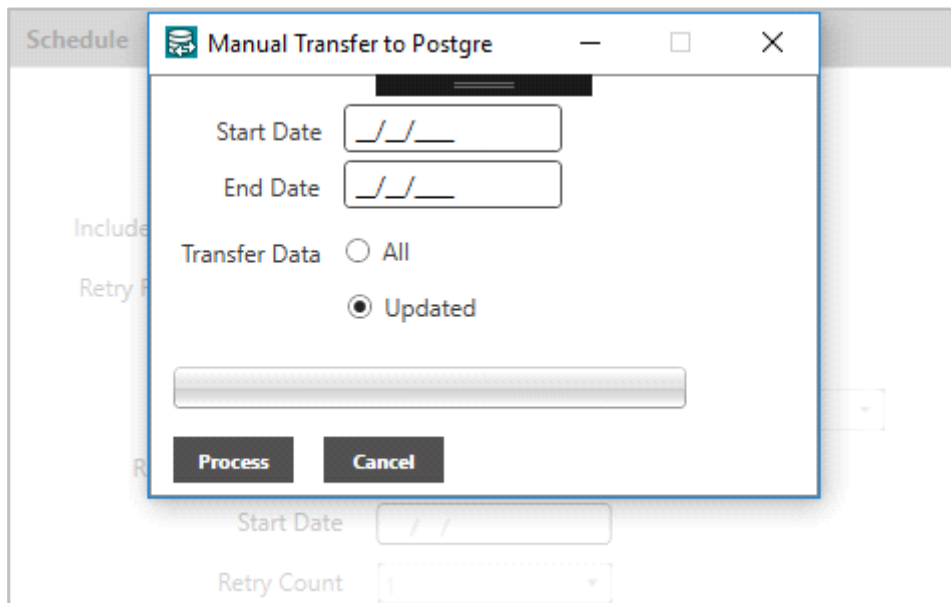
Manual Transfer

The Manual Transfer option provides the Admin user the flexibility to export data of a specific time period as and when required. In order to access this functionality click on the **Stop Service** button to stop the COSEC INTEGRATE service.

Click the **Export Data** button.

On the **Export Data** page, edit and save the export settings as per your requirement.

Click the **Manual Transfer** button. The following window appears for *Manual Transfer to Postgre*.



Enter the **Start Date** and **End Date**.

Select the **Transfer Data** mode— **All** or **Updated**.

All: All the past data falling within the selected date range will be transferred.

Updated: All the updated data falling within the selected date range will be transferred.

Click the **Process** button. The data of the specified time period will be exported to the destination table.

Export to CSV

The application allows the administrator to export data related to various user events to a **.csv file** which can be stored at a specific location on FTP/SFTP server or in a local folder on the hard disk.

Click **Server Configuration**.

In **Integration Mode** select **Export to .csv**.

Click **Edit** to configure the parameters.

The screenshot shows the MATRIX COSEC Integrate web interface. The sidebar on the left contains buttons for 'Server Configuration', 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main content area is titled 'COSEC Integrate' and features a dropdown menu for 'Integration Mode' set to 'Export to .csv'. Below this, there are two main configuration panels. The 'COSEC Web Server' panel includes fields for 'Web URL' (pre-filled with 'http://localhost/COSEC/api.svc/v2'), 'User Name', and 'Password', along with a 'Test Connection' button. The 'Destination Location' panel offers radio button options for 'Local Folder', 'FTP', and 'SFTP', a 'Saved Path' text field, a checked 'Sub-Folder' checkbox, and a 'Separator' dropdown menu currently set to ',(comma)'. A 'File Encryption' section follows, with an 'Enable' checkbox, a 'Public Key' field accompanied by a 'Choose File' button, and a 'No File Chosen' status with a download icon. A 'Save' button is positioned at the bottom of the configuration panels. At the very bottom of the interface, there are four buttons: 'Edit', 'Save', 'Cancel', and 'Delete'.

Under **COSEC Web Server** configure the following:

- **Web URL:** Specify the Web URL of the API service of the COSEC WEB Server application.
- **User Name:** Enter the User Name as **sa** as set for the COSEC WEB Server application.
- **Password:** Enter the Password as set for the COSEC WEB Server application.
- Click **Save**.
- Click **Test Connection** to confirm that the connectivity is established with the COSEC WEB Server application.

Under **Destination Location**, configure the following:

- Select the desired option — Local Folder, FTP or SFTP.

Local Folder

- If you select **Local Folder**, configure the following:

The screenshot shows the 'COSEC Integrate' web application interface. On the left is a sidebar with buttons: 'Server Configuration', 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'COSEC Integrate' and contains two main panels. The left panel, 'COSEC Web Server', has fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button. The right panel, 'Destination Location', has radio buttons for 'Local Folder' (selected), 'FTP', and 'SFTP'. Below these are fields for 'Saved Path', 'Sub-Folder' (checked), and 'Separator' (comma). A 'File Encryption' section is collapsed, showing 'Enable' (unchecked), 'Public Key' (Choose File), and 'No File Chosen' with a download icon. At the bottom are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.
- **Separator:** Select the separator which will be used to separate the fields in the exported file.

Click **File Encryption** collapsible panel and configure the following:

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.
- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. The maximum file size supported is 5MB.



- *If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.*
- Click **Save**.

FTP

- If you select **FTP**, configure the following:

The screenshot shows the MATRIX COSEC Integrate web interface. On the left is a sidebar with navigation buttons: Server Configuration, Export Data, Import Data, Start Service, About, Help, and Exit. The main area is titled 'COSEC Integrate' and contains two primary configuration panels. The 'COSEC Web Server' panel on the left includes an 'Integration Mode' dropdown set to 'Export to .csv', and input fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password'. A 'Test Connection' button is located below these fields. The 'Destination Location' panel on the right features radio buttons for 'Local Folder', 'FTP' (which is selected), and 'SFTP'. It also includes input fields for 'Saved Path', a checked 'Sub-Folder' checkbox, and a 'Separator' dropdown set to '(comma)'. Below these are expandable sections for 'Authentication' and 'File Encryption'. A 'Save' button is positioned at the bottom of the Destination Location panel. At the very bottom of the main area are four buttons: 'Edit', 'Save', 'Cancel', and 'Delete'.

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.
- **Separator:** Select the separator which will be used to separate the fields in the exported file.

Click **Authentication** collapsible panel and configure the following:

The screenshot shows the 'COSEC Integrate' web application. On the left is a sidebar with buttons: 'Server Configuration', 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area has a top bar with the 'MATRIX' logo and 'COSEC Integrate' text. Below this, there's a 'Server Configuration' section with a dropdown for 'Integration Mode' set to 'Export to .csv'. The 'COSEC Web Server' section contains fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button. The 'Destination Location' section has radio buttons for 'Local Folder', 'FTP' (selected), and 'SFTP'. It also has fields for 'Saved Path', 'Sub-Folder' (checked), and a 'Separator' dropdown set to '(comma)'. The 'Authentication' panel is expanded, showing 'User Name' and 'Password' fields. Below it is the 'File Encryption' panel, which is currently collapsed. At the bottom are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.
- **Password:** Enter the Password to be used for authentication while accessing the Path.

Click **File Encryption** collapsible panel and configure the following:

This screenshot is similar to the previous one, but the 'File Encryption' panel is now expanded. It shows an 'Enable' checkbox, which is currently unchecked. Below it is a 'Public Key' label followed by a 'Choose File' button and the text 'No File Chosen' with a download icon. The 'Authentication' panel remains expanded above it. All other elements of the interface are the same as in the previous screenshot.

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.

- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. Maximum file size supported is 5 MB.



If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.

- Click **Save**.

SFTP

- If you select **SFTP**, configure the following:

The screenshot shows the 'COSEC Integrate' web interface. On the left is a sidebar with navigation links: Server Configuration, Export Data, Import Data, Start Service, About, Help, and Exit. The main content area is titled 'COSEC Integrate' and contains two main sections: 'COSEC Web Server' and 'Destination Location'. The 'Integration Mode' dropdown is set to 'Export to .csv'. In the 'COSEC Web Server' section, the 'Web URL' is 'http://localhost/COSEC/api.svc/v2', and there are fields for 'User Name' and 'Password'. A 'Test Connection' button is at the bottom of this section. The 'Destination Location' section has three radio buttons: 'Local Folder', 'FTP', and 'SFTP' (which is selected). Below these are fields for 'Server', 'Saved Path', and 'Sub-Folder' (with a checked checkbox). A 'Separator' dropdown is set to '(comma)'. There are two radio buttons for authentication: 'With Key' and 'Without Key' (which is selected). An 'SSH Host Key FP' field is also present. At the bottom of the 'Destination Location' section are expandable sections for 'Authentication' and 'File Encryption', and a 'Save' button. At the very bottom of the interface are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **Server:** Specify the SFTP Server IP Address where the exported files are to be stored.

COSEC Integrate communicates with the SFTP Server using the default port number 22. If you wish to use any other port, then you need to configure the same in the format Server IP Address:Port. For example if Port 33 is to be used then configure the Server as 192.168.104.20:33.

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.
- **Separator:** Select the separator which will be used to separate the fields in the exported file.
- For additional authentication and security, you can select the desired option — **With Key** or **Without Key**.

If you select **With Key**, then configure the **SSH Host Key FP**.

The **SSH Host Key FP** serves as a unique identifier for the Server. This is a cryptographic representation of the Servers Public Key. It is used to verify the authenticity of the Server during the connection process. It is used to ensure that the Server the client is connecting to is the same Server that it connected with previously.

This key is provided by the Administrator of the SFTP Server to the clients.

If you select **Without Key**, then no key is required.

Click **Authentication** collapsible panel and configure the following:

The screenshot shows the 'COSEC Integrate' web interface. On the left is a sidebar with navigation links: 'Server Configuration', 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'COSEC Integrate' and contains two panels: 'COSEC Web Server' and 'Destination Location'. The 'Integration Mode' is set to 'Export to .csv'. The 'COSEC Web Server' panel has fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button. The 'Destination Location' panel has radio buttons for 'Local Folder', 'FTP', and 'SFTP' (selected). It includes fields for 'Server', 'Saved Path', 'Sub-Folder' (checked), 'Separator' (comma), and 'SSH Host Key FP'. The 'Authentication' panel is expanded, showing 'Mode' set to 'Password-Based', and fields for 'User Name' and 'Password'. Below it is the 'File Encryption' section. At the bottom are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

This screenshot is similar to the one above, but the 'Authentication' panel is configured differently. The 'Mode' is set to 'Key-Based'. The 'Private Key' field has a 'Choose File' button and a 'No File Chosen' message with a download icon. The 'Passphrase' field is also present. All other fields and the overall layout remain the same as in the previous screenshot.

- **Mode:** Select the desired mode for authentication — **Password-Based**, **Key-Based**.

If you select **Password-Based**, configure the following:

In Password-Based, when a client signs in, the Server checks the User Name and Password combination and then approves/denies the request.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.
- **Password:** Enter the Password to be used for authentication while accessing the Path.

If you select **Key-Based**, configure the User Name, Private Key and Passphrase.

In Key-Based, when a client signs in, a pair of keys — Private and Public — are used for authentication. The Public Key is uploaded in the SFTP Server while the Private Key is provided to the client.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.
- **Private Key:** Click **Choose** and select the key file which is to be used for authentication.
- **Passphrase:** Enter the Passphrase. This is used in combination with the Private Key to acquire the SFTP Server access.

Click **File Encryption** collapsible panel and configure the following:

The screenshot shows the MATRIX COSEC Integrate web interface. On the left is a sidebar with navigation links: Server Configuration, Export Data, Import Data, Start Service, About, Help, and Exit. The main content area is titled 'COSEC Integrate' and contains two main panels. The 'COSEC Web Server' panel on the left has fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', along with a 'Test Connection' button. The 'Destination Location' panel on the right has radio buttons for 'Local Folder', 'FTP', and 'SFTP' (which is selected). Below these are fields for 'Server', 'Saved Path', 'Sub-Folder' (checked), 'Separator' (comma), and 'With Key'/'Without Key' radio buttons. There is also an 'SSH Host Key FP' field. Below these panels are two collapsible sections: 'Authentication' and 'File Encryption'. The 'File Encryption' section is expanded, showing an 'Enable' checkbox, a 'Public Key' field with a 'Choose File' button, and a 'No File Chosen' status with a download icon. At the bottom of the main content area are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.

- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. Maximum file size supported is 5 MB.



If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.

- Click **Save**.

Export Data Configuration

This option enables the Admin user to specify the fields whose values are to be exported to the .csv file.

Each database views would provide the relevant fields whose values can be exported from the COSEC database.

Source Data Template: Select the required data template and click on the **Edit** button. Now the admin user can start the selection of the fields from the source database as shown.

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

Export

Database: Export to .csv

Source Data Template: Template_Daily

Table-Field Mapping

Source Field: ACTIVEFLAG | NUMERIC | 1 | 0

Add

Source Field	Data Type	Length	Decima	Destination Field	Data Type	Length	Decima	Clear
USERNAME	NVARCHAR	45	0					Clear
JOINDT	NVARCHAR	10	0					Clear
PUNCH1	DATETIME	8	0					Clear
PDATE	DATETIME	8	0					Clear
OUTPUNCH	DATETIME	8	0					Clear

Schedule

Add Edit Save Manual Transfer Cancel Filter

Select the **Source field** from the drop down list and click on the **Add** button. The field will be added to the grid as shown above. You can remove a selected field by clicking on **Clear** button for the respective field.

The **Schedule** section enables the admin user to schedule the data export process. The schedule option vary based on the selected Source Data Template. The **Daily Attendance detail** will have the following options as shown.

- Check the **Active** box to enable the schedule.
- The **Enable Filter** option is provided to enable the administrator to filter the users whose data is to be exported. Check this box and click on the **Filter** button. The Multiple selection window appears. Select the users whose data is to be exported.
- **Destination FileName:** Enter a filename in this field. The max characters can be 200. The file name can include Alphanumeric characters, Special characters like `!@#%&()_+=[]{};'.<space> A-Z a-z 0-9` and **pair of asterisks(**)**.

You can type '*' in the text-area. This will show the list of variables as per the template type. Select the desired variable. It will be added by appending '*' at the end. During the deployment of file, the current date-time values will be fetched and replaced instead of these variables.



1. When '*' is typed in text area, another '*' will be added automatically as it is allowed only in pair.
2. When you are entering filename and the appearing variable list is disturbing then you can enter **ESC** key to hide the variables for the instance.

Example of Variables:

gdateDD- This variable will fetch and show the date on which the data is exported and file is generated. Similarly variables are available for month, year, hours. minute and seconds.

fromDD- This variable will fetch and show the date value of the Start Date. Similarly variables are available for month and year. Suppose Start date is 1st date of current month. If current month is Feb so the value of variable will be "1".

toDD- This variable will fetch and show the date value of the End Date. Similarly variables are available for month and year. Suppose End date is Last date of current month. If current month is Feb so the value of variable will be "28".

atdMM*- This variable will fetch and show the month value of attendance period. Similarly variables is available for year.

Example : A new template has been configured with Destination FileName = 'Atd. Events_ *fromDD*-*fromMM*-*fromYY*_to_*toDD*-*toMM*-*toYY*'

Now, this template is manually exported with date-range, 01-01-2016 to 02-01-2016. Thus, the exported file name will be Atd. Events_01-01-16_to_02-01-16.csv

The system creates a folder named **DailyAttendance** in the path as specified in the server configuration.

- **Schedule:** Select the option as **Daily** or **Monthly** to run the schedule
 - For **monthly schedule** specify the **day** of the month on which the export process is to be run. And select the **Attendance period** i.e. starting and the ending day of the attendance period for which the data is to be exported.
 - For **daily schedule** select the **Daily Attendance** of Previous Day or Current Day for which the attendance details is to be exported.
- **Run time:** Specify the Run time in HH:MM format when the export process is to be run.
- **Retry Count:** Set the Retry Count from the drop down list to retry the export if it gets failed.
- **Retry Interval:** Select the Retry Interval in hours from the drop down list. This parameter specifies the time period between successive retries.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

Then click on **Save** button to save the schedule. Now you can start service for running the export schedule. See [“Exporting Data” on page 36.](#)

The **Monthly Template** will have the same options as mentioned above except the **Attendance Period** option.

The 'Schedule' dialog box for the Monthly Template includes the following fields and options:

- Active:** ☒
- Enable Filter:** ☒
- Destination FileName:** (../MonthlyAttendance)
- Every:** **Day of the Month**
- Run time (HH:MM):**
- Retry Count:**
- Retry Interval:** **Hour**
- Attendance Period:**
- Enable Alerts For:** ☒ **Success** ☐ **Failure**

The **ATD Events** and **ACS Events** templates' schedule is shown below.

The 'Schedule' dialog box for the ATD Events and ACS Events templates includes the following fields and options:

- Active:** ☒
- Enable Filter:** ☒
- Destination FileName:** (../AttendanceEvents)
- Update Interval:** ☒ **Interval Based** ☐ **Once a Day**
- Run Time (HH:MM):**
- Start Date:**
- Retry Count:**
- Retry Interval:**
- Enable Alerts For:** ☒ **Success** ☐ **Failure**

- Specify the **Update Interval** in seconds, minutes or hours to define the frequency at which the application will export the data to the csv file.
- Specify the **Start Date** from which the export process is to be initiated.



In the csv format for exporting data, the records in the csv file would be sorted in the same order as they were added.

Exporting Data

Schedule Export

For starting the export of file, after saving the schedule; click on **Start Service** button. The exported file will be exported at the path specified in Server configuration.

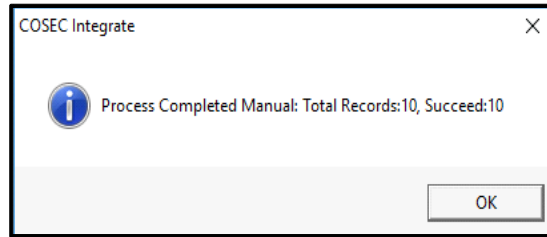
The Daily Attendance exported file is shown below.

This PC > New Volume (E:) > DailyAttendance				
Name	Date modified	Type	Size	
Atd.Events_01 to 05	07-Feb-18 3:16 PM	Microsoft Excel C...	1 KB	

	A	B	C	D	E	F
1	Chirag		1-1-18 12:00 AM	9:00:00	19:00:00	
2	Khushbu		1-1-18 12:00 AM			
3	Chirag		2-1-18 12:00 AM	9:15:00	19:30:00	
4	Khushbu		2-1-18 12:00 AM			
5	Chirag		3-1-18 12:00 AM	9:00:54	19:00:53	
6	Khushbu		3-1-18 12:00 AM			
7	Chirag		4-1-18 12:00 AM	9:16:29	19:16:27	
8	Khushbu		4-1-18 12:00 AM			
9	Chirag		5-1-18 12:00 AM			
10	Khushbu		5-1-18 12:00 AM			
11						

Manual Export

You can also do the Manual transfer of data by clicking **Manual Transfer** button.



The name of the exported text file will be as per the Destination File name and data will be as per the Table field Mapping. The exported file will be as shown in Schedule export.

Export to MySQL

Select the **Export to MySQL Server** option in the **Integration Mode** field. Click on the **Edit** button.



Integrate supports Export to MySQL from version MySQL 8.0.27 to MySQL 8.3.0

Integration Mode: Export to MySQL

COSEC Web Server

Web URL:

User Name:

Password:

MySQL

Server:

Port:

Database Name:

User Name:

Password:

In the **COSEC Web Server** section:

- Specify the web url of the api service of the COSEC WEB application as shown.
- Enter the User Name and Password of the sa user as set in the COSEC WEB application.

In the **Destination Database** Server section:

- The **Database Type** will be SQL SERVER.
- **Server:** Enter the database server name in the following format - **Database server name\Instance Name**
e.g. dbserver\sqlexpress.
- **Database Name:** Specify the database name of the destination database as per the site settings.
- **User Name:** Specify the database administrator ID in this field.
- **Password:** Enter the password of the Database administrator as per the site settings.

The **Test Connection** button is provided to test the connections with the web server as well as the SQL Server database.

Click on **Save** once done.

Export Data Configuration

This option enables the Admin user to map the fields from the COSEC database tables to fields in a third party database. Click on the **Export Data** button. The following page appears.

Export
Database: MySQL Server
Source Data Template: Daily Attendance Detail

Table-Field Mapping

Destination Table: daily_attendance

Source Field: AdlUserID | numeric | 8 | 0

Destination Field: AdlUser_ID | Int32 | 11 | 0

Add

Source Field	Source Type	Source Length	Source Null	Destination Field	Destination Type	Destination Length	Destination Null	Action
AdlUserID	numeric	8	0	AdlUser_ID	Int32	11	0	Clear
ProcessDate_D	datetime	8	0	processdate_d	DateTime	19	0	Clear
UserID	varchar	10	0	UserID	VarChar	10	0	Clear

Schedule

Active: ☒ Enable Filter: ☐

Schedule: Monthly

Every: 20 Day of the Month Run time (HH:mm): 17:30

Retry Count: 1 Retry Interval: 1 Hour

Attendance Period: 1 Day of Previous Month To 1 Day of Current Month

Add Edit Save Manual Transfer Filter Cancel

The COSEC INTEGRATE application provides four data templates in line with the default **Database Views** as shown. The COSEC System provides the following four Database views which would provide the relevant field options to be mapped with the fields of a destination database.

- Monthly Attendance Summary
- Daily Attendance Detail
- Attendance Events
- Access Control Events

Each of the above database views would provide the relevant fields whose values can be exported from the COSEC database. Select the required data template and click on the **Edit** button.

Now the Admin user can start the **mapping of the fields** from the source database to that of the destination database as shown.

The screenshot shows the 'Export' configuration window. Under 'Database', 'MySQL Server' is selected. Under 'Source Data Template', 'Daily Attendance Detail' is selected. The 'Table-Field Mapping' section shows 'daily_attendance' as the 'Destination Table'. The 'Source Field' is 'AdlUserID' (numeric, 8, 0) and the 'Destination Field' is 'AdlUser_ID' (Int32, 11, 0). An 'Add' button is present. Below is a table showing the mapped fields:

Source Field	Data Type	Length	Decimal	Destination Field	Data Type	Length	Decimal	Clear
AdlUserID	numeric	8	0	AdlUser_ID	Int32	11	0	<button>Clear</button>
ProcessDate_D	datetime	8	0	processdate_d	DateTime	19	0	<button>Clear</button>
UserID	varchar	10	0	UserID	VarChar	10	0	<button>Clear</button>

- Select the **Destination Table** from the pull down list.
- Select the **Source field** from the COSEC database.
- Select the **Destination field** from the selected destination table.
- Click on the **Add** button. The mapped fields will be visible in the bottom grid as shown.

In the case of Attendance Events and Access Control Events the user needs to map the UserID and the EventDateTime_D source fields to fields in the destination table.



Map the UserID, PMonth and Pyear source fields to appropriate fields in the destination table in the case of the Monthly Attendance Summary.

Map the UserID and ProcessDate_D source fields to appropriate fields in the destination table in the case of the Daily Attendance Detail.

The **Schedule** section enables the Admin user to schedule the data export process. The schedule option vary based on the selected Source Data Template. The **Daily Attendance detail** will have the following options as shown.

Schedule ^

Active ☐

Enable Filter ☐

Schedule Monthly

Every 1 Day of the Month

Run time (HH:MM)

Retry Count 1

Retry Interval 1 Hour

Attendance Period 1 Day of Current Month To

1 Day of Current Month

Enable Alerts For ☐ Success ☐ Failure

- Check the **Active** box to enable the schedule.
- The **Enable Filter** option is provided to enable the administrator to filter the users whose data is to be exported. Check this box and click on the **Filter** button. The Multiple selection window appears. Select the users whose data is to be exported.
- Specify the day of the month on which the export process is to be run.
- Specify the **Run time** in HH:MM format when the export process is to be run.
- Set the **Retry Count** from the pull down list.
- Set the **Retry Interval** in hours from the pull down list. This parameter specifies the time period between successive retries.
- Specify the **Attendance Period** by specifying the starting and the ending day of the attendance period for which the data is to be exported.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

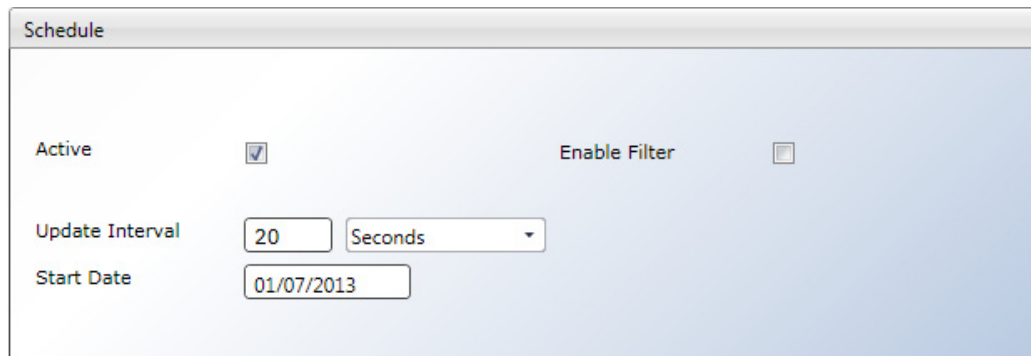
Select any one option for data transfer i.e, Daily or Monthly in the field **Schedule**. On selection of Monthly option, user can set data transfer process to run only once in a month. By default, **Monthly** option would be selected. When selecting **Daily** option from the drop down list, the options appears as shown.

User can configure to transfer data for either previous day's attendance data or current day's attendance data with respect to schedule run day.

The **Monthly Attendance Summary** will have the following unique options:

- Select the **Attendance Period** for which the monthly Attendance summary data is to be exported. The Admin user can select either the **previous month** or **current month** option.

On selecting the **Attendance Events** or the **Access Control Events** the following schedule options will be available.



The 'Schedule' dialog box has a title bar 'Schedule'. Inside, there are four settings: 'Active' with a checked checkbox, 'Enable Filter' with an unchecked checkbox, 'Update Interval' with a text box containing '20' and a dropdown menu set to 'Seconds', and 'Start Date' with a text box containing '01/07/2013'.

- Check the **Active** box to enable the schedule.
- Set the filter parameters as described earlier.
- Specify the **Update Interval** in seconds, minutes or hours to define the frequency at which the application will update the destination database.
- Specify the **Start Date** from which the export process is to be initiated.

After defining the above parameters, the Admin user has to click on the **Start Service** button.



The application will start the **COSEC INTEGRATE** service as shown.

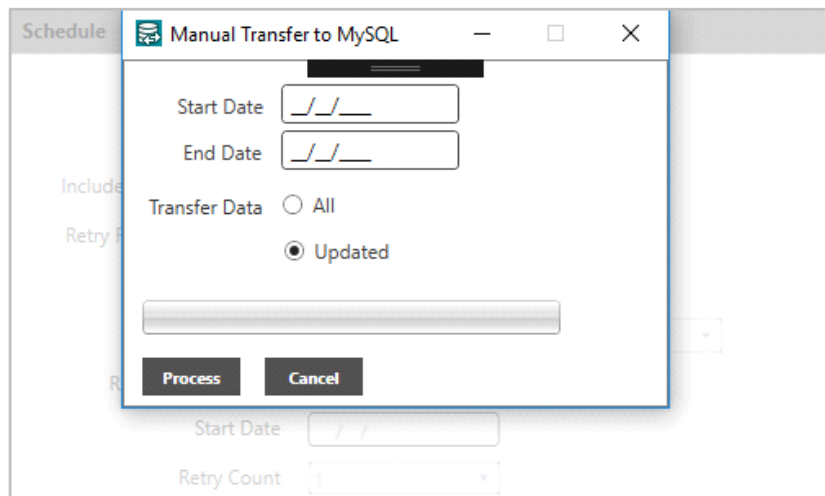
Manual Transfer

The Manual Transfer option provides the Admin user the flexibility to export data of a specific time period as and when required. In order to access this functionality click on the **Stop Service** button to stop the COSEC INTEGRATE service.

Click the **Export Data** button.

On the **Export Data** page, edit and save the export settings as per your requirement.

Click the **Manual Transfer** button. The following window appears for *Manual Transfer to MySQL*.



Enter the **Start Date** and **End Date**.

Select the **Transfer Data** mode— **All** or **Updated**.

All: All the past data falling within the selected date range will be transferred.

Updated: All the updated data falling within the selected date range will be transferred.

Click the **Process** button. The data of the specified time period will be exported to the destination table.

Export to Text

The application allows the administrator to export data related to various user events as mentioned earlier to a text file which can be stored at a specific location on FTP/SFTP server or in a local folder on the hard disk.

Click **Server Configuration**.

In **Integration Mode** select **Export to Text File**.

Click **Edit** to configure the parameters.

The screenshot shows the 'COSEC Integrate' application window. On the left is a sidebar with buttons: 'Server Configuration' (highlighted), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is divided into two panels. The left panel, titled 'COSEC Web Server', contains fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', along with a 'Test Connection' button. The right panel, titled 'Destination Location', has radio buttons for 'Local Folder', 'FTP', and 'SFTP'. Below these are fields for 'Saved Path', 'Sub-Folder' (checked), and 'Separator' (comma). A 'File Encryption' section includes an 'Enable' checkbox, a 'Public Key' field with a 'Choose File' button, and a 'No File Chosen' status. A 'Save' button is at the bottom of the right panel. At the very bottom of the window are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

Under **COSEC Web Server** configure the following:

- **Web URL:** Specify the Web URL of the API service of the COSEC WEB Server application.
- **User Name:** Enter the User Name as **sa** as set for the COSEC WEB Server application.
- **Password:** Enter the Password as set for the COSEC WEB Server application.
- Click **Save**.
- Click **Test Connection** to confirm that the connectivity is established with the COSEC WEB Server application.

Under **Destination Location**, configure the following:

- Select the desired option — Local Folder, FTP or SFTP.

Local Folder

- If you select **Local Folder**, configure the following:

The screenshot shows the 'COSEC Integrate' web application. On the left is a sidebar with buttons: 'Server Configuration', 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'COSEC Integrate' and contains two main sections. The 'COSEC Web Server' section has fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button. The 'Destination Location' section has radio buttons for 'Local Folder' (selected), 'FTP', and 'SFTP'. Below these are fields for 'Saved Path', 'Sub-Folder' (checked), and 'Separator' (comma). A 'File Encryption' section is collapsed, showing 'Enable' (unchecked), 'Public Key' (Choose File), and 'No File Chosen' with a download icon. At the bottom are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.
- **Separator:** Select the separator which will be used to separate the fields in the exported file.

Click **File Encryption** collapsible panel and configure the following:

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.
- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. The maximum file size supported is 5MB.



- *If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.*
- Click **Save**.

FTP

- If you select **FTP**, configure the following:

The screenshot shows the MATRIX COSEC Integrate web interface. The left sidebar contains navigation buttons: Server Configuration, Export Data, Import Data, Start Service, About, Help, and Exit. The main content area has a top bar with the MATRIX logo and 'COSEC Integrate'. Below this, there's a 'Integration Mode' dropdown set to 'Export to Text File'. The main area is split into two panels: 'COSEC Web Server' and 'Destination Location'. The 'COSEC Web Server' panel contains fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button. The 'Destination Location' panel has radio buttons for 'Local Folder', 'FTP' (selected), and 'SFTP'. It also has a 'Saved Path' field, a 'Sub-Folder' checkbox (checked), and a 'Separator' dropdown (comma). Below these are expandable sections for 'Authentication' and 'File Encryption'. At the bottom of the main area are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.
- **Separator:** Select the separator which will be used to separate the fields in the exported file.

Click **Authentication** collapsible panel and configure the following:

The screenshot shows the MATRIX COSEC Integrate web interface. On the left is a sidebar with buttons: Server Configuration, Export Data, Import Data, Start Service, About, Help, and Exit. The main area has a top bar with the MATRIX logo and 'COSEC Integrate'. Below this is a 'Server Configuration' section with a dropdown for 'Integration Mode' set to 'Export to Text File'. The 'COSEC Web Server' section contains fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button. The 'Destination Location' section has radio buttons for 'Local Folder', 'FTP' (selected), and 'SFTP'. It includes fields for 'Saved Path', 'Sub-Folder' (checked), and 'Separator' (comma). The 'Authentication' panel is expanded, showing 'User Name' and 'Password' fields. Below it is the 'File Encryption' panel, which is currently collapsed. At the bottom are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.
- **Password:** Enter the Password to be used for authentication while accessing the Path.

Click **File Encryption** collapsible panel and configure the following:

This screenshot shows the same MATRIX COSEC Integrate interface, but with the 'File Encryption' panel expanded. The 'Authentication' panel is now collapsed. The 'File Encryption' panel contains an 'Enable' checkbox, which is currently unchecked. Below it is a 'Public Key' section with a 'Choose File' button and a 'No File Chosen' status. A download icon is also present. The 'Save' button is at the bottom of this panel. The rest of the interface remains the same as in the previous screenshot.

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.

- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. Maximum file size supported is 5 MB.



If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.

- Click **Save**.

SFTP

- If you select **SFTP**, configure the following:

The screenshot shows the 'COSEC Integrate' web application. On the left is a sidebar with buttons: 'Server Configuration', 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'COSEC Integrate' and contains two panels. The left panel, 'COSEC Web Server', has fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button below. The right panel, 'Destination Location', has radio buttons for 'Local Folder', 'FTP', and 'SFTP' (selected). Below these are fields for 'Server', 'Saved Path', and 'Sub-Folder' (with a checked checkbox). A 'Separator' dropdown is set to '(comma)'. There are radio buttons for 'With Key' and 'Without Key'. An 'SSH Host Key FP' field is present. At the bottom of the right panel are expandable sections for 'Authentication' and 'File Encryption', and a 'Save' button. At the very bottom of the main area are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **Server:** Specify the SFTP Server IP Address where the exported files are to be stored.

COSEC Integrate communicates with the SFTP Server using the default port number 22. If you wish to use any other port, then you need to configure the same in the format Server IP Address:Port. For example if Port 33 is to be used then configure the Server as 192.168.104.20:33.

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.
- **Separator:** Select the separator which will be used to separate the fields in the exported file.
- For additional authentication and security, you can select the desired option — **With Key** or **Without Key**.

If you select **With Key**, then configure the **SSH Host Key FP**.

The **SSH Host Key FP** serves as a unique identifier for the Server. This is a cryptographic representation of the Servers Public Key. It is used to verify the authenticity of the Server during the connection process. It is used to ensure that the Server the client is connecting to is the same Server that it connected with previously.

This key is provided by the Administrator of the SFTP Server to the clients.

If you select **Without Key**, then no key is required.

Click **Authentication** collapsible panel and configure the following:

The screenshot shows the 'COSEC Integrate' web interface. On the left is a sidebar with navigation links: 'Server Configuration', 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'COSEC Integrate' and contains two main sections: 'COSEC Web Server' and 'Destination Location'. The 'Integration Mode' is set to 'Export to Text File'. In the 'COSEC Web Server' section, the 'Web URL' is 'http://localhost/COSEC/api.svc/v2', and 'User Name' and 'Password' fields are empty. A 'Test Connection' button is present. The 'Destination Location' section has radio buttons for 'Local Folder', 'FTP', and 'SFTP' (selected). Below these are fields for 'Server', 'Saved Path', 'Sub-Folder' (checked), 'Separator' (set to '(comma)'), and 'With Key'/'Without Key' (selected). The 'SSH Host Key FP' field is empty. The 'Authentication' panel is expanded, showing 'Mode' set to 'Password-Based', with 'User Name' and 'Password' fields. The 'File Encryption' panel is collapsed. At the bottom are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

This screenshot is similar to the one above, but the 'Authentication' panel is expanded and the 'Mode' is set to 'Key-Based'. In this mode, the 'User Name' field is empty, the 'Private Key' field has a 'Choose File' button and 'No File Chosen' text, and the 'Passphrase' field is empty. The 'File Encryption' panel remains collapsed. All other settings and the interface layout are identical to the previous screenshot.

- **Mode:** Select the desired mode for authentication — **Password-Based**, **Key-Based**.

If you select **Password-Based**, configure the following:

In Password-Based, when a client signs in, the Server checks the User Name and Password combination and then approves/denies the request.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.
- **Password:** Enter the Password to be used for authentication while accessing the Path.

If you select **Key-Based**, configure the User Name, Private Key and Passphrase.

In Key-Based, when a client signs in, a pair of keys — Private and Public — are used for authentication. The Public Key is uploaded in the SFTP Server while the Private Key is provided to the client.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.
- **Private Key:** Click **Choose** and select the key file which is to be used for authentication.
- **Passphrase:** Enter the Passphrase. This is used in combination with the Private Key to acquire the SFTP Server access.

Click **File Encryption** collapsible panel and configure the following:

The screenshot displays the MATRIX COSEC Integrate web interface. On the left is a sidebar with navigation links: Server Configuration, Export Data, Import Data, Start Service, About, Help, and Exit. The main content area is titled 'COSEC Integrate' and features a 'Server Configuration' section with a dropdown for 'Integration Mode' set to 'Export to Text File'. Below this are fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', along with a 'Test Connection' button. To the right is the 'Destination Location' section, which includes radio buttons for 'Local Folder', 'FTP', and 'SFTP' (selected). It also has fields for 'Server', 'Saved Path', 'Sub-Folder' (checked), 'Separator' (comma), and 'SSH Host Key FP'. Below these are two collapsible panels: 'Authentication' and 'File Encryption'. The 'File Encryption' panel is expanded, showing an 'Enable' checkbox, a 'Public Key' field with a 'Choose File' button, and a 'No File Chosen' status with a download icon. A 'Save' button is located at the bottom of the configuration area.

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.
- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. Maximum file size supported is 5 MB.



If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.

- Click **Save**.

Export Data Configuration

This option enables the admin user to specify the fields whose values are to be exported to the text file. Each database views would provide the relevant fields whose values can be exported from the COSEC database.

Source Data Template: Select the required data template

Text File Template: The templates will be generated once the Text file configuration is done. For configuring Text file template, click on **Add** button by scrolling the Text file Configuration section.

If the Text file template is available then you can select it and click on the **Edit** button for selecting the fields from the source database.

Text File Configuration

Text File Configuration

Template: Attendance Events

File Header: ☒ Column Name

File Footer: ☐ Custom

Export Type: Separator Based Space

Data Type: Database Field

Database Field: EVENTDATETIME DATETIME 8

Column Name: Noteflag

Start-End Position: 0 Length

Alignment: Left Padding: Space

Data Formatting: None

Template: Specify the name of the Template to which the source file is to be mapped.

File Header: Click on the check box to enable this option. Click on the drop down arrow to select the options as mentioned below

- **Column Name:** Enable the checkbox. You can specify the name of the columns while selecting Data type and the related fields which is described later. The Column Name will then be exported as the header.
- **Custom:** For a common header of the page, you can select the custom option and specify a file header name in adjacent box.

The allowed functions are mentioned below:

AVG: Returns the average. Syntax: AVG(arg1)

CONVERT: Converts particular expression to a specified .NET framework type. Syntax: Convert(expression, type)

COUNT: Counts how many numbers are in the list of arguments. Syntax: COUNT(arg1,)

IIF: Specifies a logical test to perform. Syntax: IIF(expression, [value_if_true],[value_if_false])

ISNULL: Checks an expression and either returns the checked expression or a replacement value.
Syntax: ISNULL(expression, replacement value)

MAX: Returns the maximum value in a list of arguments. Syntax: MAX(arg1)

MIN: Returns the minimum value in a list of arguments. Syntax: MIN(arg1)

LEN: Gets the length of a String. Syntax: CONVERT(expression)

SUBSTRING: Gets a sub-string of a specified length, starting at a specified point in the string.
Syntax: SUBSTRING(expression, start, length)

SUM: Adds its arguments. Syntax: SUM(arg1)

STDEV: Estimates standard deviation based on a sample. Syntax: STDDEV(arg1)

VAR: Estimates variance based on a sample. Syntax: VAR(arg1)

TRIM: Removes all leading and trailing blank characters like \r, \n, \t. Syntax: TRIM(arg1)

File Header ☒ Column Name

File Footer ☐ Column Name

Export Type Fixed Custom

File Footer: Click on the check box to enable this option. Specify the desired footer in the adjacent box as shown below.

Text File Configuration

Template Attendance Events

File Header ☒ Column Name

File Footer ☒ CustomMatrix.....

Export Type Separator Based Space

Export Type: Click on the drop down arrow to select the export type as Fixed Position based or Separator based.



The Export type option can be selected when the template is created for the first time. When the template is edited then Export type will be disabled.

1. **Fixed Position Based:** Select this option if you want the columns to be fixed position based.
 - **Start-End Position:** Enter the position value. Eg: 0 to 10 position is set by entering end position as 10
 - **Length** will be updated automatically according to the fixed position value. You can manually enter the Length value less than the position value.
 - **Alignment** can be selected as Left or Right.
 - **Padding:** Select the Padding value from the drop down options for appending it after the data end point upto the position end point.
 - **Data formatting:** Select the Data formatting if required.

The screenshot shows the 'Text File Configuration' dialog box. The 'Template' is set to 'User Data'. The 'File Header' checkbox is checked, and the 'Column Name' dropdown is selected. The 'File Footer' checkbox is unchecked, and the 'Custom' dropdown is selected. The 'Export Type' is set to 'Fixed Position Based', and the 'Data Type' is set to 'Database Field'. The 'Database Field' is set to 'USERNAME', 'NVARCHAR', '45', and '0'. The 'Column Name' is set to 'Name'. The 'Start-End Position' is set to '10', and the 'Length' is set to '11'. The 'Alignment' is set to 'Left', and the 'Padding' is set to ':(colon)'. The 'Data Formatting' is set to 'None'. There are 'Add', 'Edit', 'Cancel', and 'Delete' buttons at the bottom.

2. **Separator Based:** Select this option if you want the columns to be Separator based.

- Select the separator options from the drop down list as shown below. You can also select the custom separator option and specify the separator in the adjacent box.

The screenshot shows the 'Text File Configuration' dialog box. The 'Template' is set to 'User Data_Separator based'. The 'File Header' checkbox is checked, and the 'Column Name' dropdown is selected. The 'File Footer' checkbox is unchecked, and the 'Custom' dropdown is selected. The 'Export Type' is set to 'Separator Based', and the 'Data Type' is set to 'Database Field'. The 'Database Field' is set to 'USERNAME', 'NVAR', and '1'. The 'Column Name' is set to 'Name'. The 'Start-End Position' is set to '10', and the 'Length' is set to '11'. The 'Alignment' is set to 'Left', and the 'Padding' is set to ':(colon)'. The 'Data Formatting' is set to 'None'. There are 'Add', 'Edit', 'Cancel', and 'Delete' buttons at the bottom. A dropdown menu is open for the 'Separator Based' option, showing options: Space, ,(comma), ,(semi-colon), ,(period), ,(colon), Tab, ~, !, @, #, and \$.

Data Type: Click on the drop down arrow to select the type of data to be exported.

The screenshot shows the 'Data Type' dropdown menu in the 'Text File Configuration' dialog box. The dropdown is open, showing options: Database Field, Fixed, Custom Field, and Filler. The 'Database Field' option is selected. There are 'Add', 'Edit', 'Cancel', and 'Delete' buttons at the bottom.

- **Fixed:** Select this option and enter the value in the Fixed value field as shown below. For eg: the organization name remains common to all the employees, so it is considered as fixed value.
- **Custom Field:** Select this option and enter the value in the Custom value field as shown below.

- **Filler:** If Export type is selected as Fixed position based, then the data type can be selected as Filler. This is used as the gap between the columns. Filler itself acts as a column, which has value other than data for eg: space, comma etc. Specify the filler value from the drop down list.

The screenshot shows a configuration window with a 'Data Type' dropdown set to 'Filler'. Below it, a 'Filler Value' dropdown is set to '.(comma)'. A list of other options is visible, including '.(semi-colon)', '.(period)', '.(colon)', '~', '!', '@', '#', '\$', '%', and '^'.

- **Database Field:** Click the drop down arrow and select the database field options.

The screenshot shows a configuration window with a 'Database Field' dropdown set to 'USERID'. A list of other database fields is visible, including 'USERNAME', 'WODAYS', 'WORKTIME', 'WORKTIME_HHMM', 'WRKTIMEW1', 'WRKTIMEW1_HHMM', 'WRKTIMEW2', 'WRKTIMEW2_HHMM', 'WRKTIMEW3', and 'WRKTIMEW3_HHMM'.

When **Data Type** is selected as **Database Field**, then you have the option to Replace value. [“Example: Replace Value”](#)

When **Data Type** is selected as **Custom field**, the user can create an expression with the fields available in the selected export view template. The expression should be validated same as in the Text File Configuration section of Export to Text.

"Field Conditions support replacing value after performing comparison of field value with some fixed value / database field.

Example: Replace Value

To compare punch event date-time (EDateTime) and insertion date-time (IDateTime).

During door offline condition suppose only first punch(9:00 hrs) is recorded and after that punch was not recorded for that day. So punch can be inserted after the first punch.

The system will compare the inserted punch> event punch, then the Noteflag column will be replaced with the value 1. You can give any name to the column for the fields.

Click the Field Replace button  to replace the desired field value.

Condition	Field Value	Replace Value	Clear
>	EVENTDATETIME	1	Clear

Field Value can be Database Field value or fixed value with which the database field value (selected from the Text file configuration) will be compared.

Replace Value can be a fixed value or any custom value. (Here If IDATETIME > EDATETIME, then column will be replace with value 1)

Condition	Field Value	Replace Value	Clear
>	EVENTDATETIME	1	Clear

Schedule Section

The **Schedule section** enables the Admin user to schedule the data export process. The schedule option vary based on the selected Source Data Template.

The **Daily Template** will have the following options as shown. (Attendance Period for monthly schedule and Daily Attendance for Daily schedule.)

The screenshot shows the 'Schedule' configuration window. It includes the following fields and options:

- Active:** A checked checkbox.
- Enable Filter:** An unchecked checkbox.
- File Generation:** A dropdown menu set to 'Single'. To its right is an 'Organization' dropdown menu.
- Destination FileName:** A text box containing 'Matrix_attendance "from DD" to "to dd"'. To its right is an 'Extension' text box containing 'txt'.
- Schedule:** A dropdown menu set to 'Monthly'.
- Every:** A dropdown menu set to '1', followed by the text 'Day of the Month'.
- Run time (HH:MM):** A text box containing '15:30'.
- Retry Count:** A dropdown menu set to '1'.
- Retry Interval:** A dropdown menu set to '1', followed by the text 'Hour'.
- Attendance Period:** A dropdown menu set to '1', followed by 'Day of', a dropdown menu set to 'Current Month', and the text 'To'.

- Check the **Active** box to enable the schedule.
- The **Enable Filter** option is provided to enable the administrator to filter the users whose data is to be exported. Check this box and click on the **Filter** button. The Multiple selection window appears. Select the users whose data is to be exported.
- **File Generation:** Select **Single** or **Multiple** configuration for the file generation based on Enterprise groups. On Selecting Multiple option, second drop-down of File Generation will be activated. It enables to generate different files based on enterprise groups as shown below.

The screenshot shows the 'Schedule' configuration window with the 'File Generation' dropdown set to 'Multiple'. The 'Destination FileName' text box now contains 'attendance "from dd" to "to dd"'. All other fields and options remain the same as in the previous screenshot.

- **Destination FileName:** Enter a filename in this field. The max characters can be 200. The file name can include Alphanumeric characters, Special characters like !@#%&()_+=[]{};',.<space> A-Z a-z 0-9 and pair of asterisks(**).

You can type '*' in the text-area. This will show the list of variables as per the template type. Select the desired variable. It will be added by appending '*' at the end. During the deployment of file, the current date-time values will be fetched and replaced instead of these variables.



1. When '*' is typed in text area, another '*' will be added automatically as it is allowed only in pair.
2. When you are entering filename and the appearing variable list is disturbing then you can enter **ESC** key to hide the variables for the instance.

Example of Variables:

gdateDD- This variable will fetch and show the date on which the data is exported and file is generated. Similarly variables are available for month, year, hours, minute and seconds.

fromDD- This variable will fetch and show the date value of the Start Date. Similarly variables are available for month and year. Suppose Start date is 1st date of current month. If current month is Feb so the value of variable will be "1".

toDD- This variable will fetch and show the date value of the End Date. Similarly variables are available for month and year. Suppose End date is Last date of current month. If current month is Feb so the value of variable will be "28".

atdMM*- This variable will fetch and show the month value of attendance period. Similarly variables is available for year.

Example : A new template has been configured with Destination FileName = 'Atd. Events_ *fromDD*-*fromMM*-*fromYY*_to_*toDD*-*toMM*-*toYY*'

Now, this template is manually exported with date-range, 01-01-2016 to 02-01-2016. Thus, the exported file name will be Atd. Events_01-01-16_to_02-01-16.txt

- **Schedule:** Select the option as **Daily** or **Monthly** to run the schedule.
 - For **monthly schedule** specify the **day** of the month on which the export process is to be run. And select the **Attendance period** i.e. starting and the ending day of the attendance period for which the data is to be exported.
 - For **daily schedule** select the **Daily Attendance** of Previous Day or Current Day for which the attendance details is to be exported.
- **Run time:** Specify the Run time in HH:MM format when the export process is to be run.
- **Retry Count:** Set the Retry Count from the drop down list to retry the export if it gets failed.
- **Retry Interval:** Select the Retry Interval in hours from the drop down list. This parameter specifies the time period between successive retries.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

Then click on **Save** button to save the schedule. Now you can start service for running the export schedule. [See “Exporting Data” on page 61.](#)

The **Monthly Template** will have the same options as mentioned above except the **Attendance Period** option.

Schedule

Active ☒

Enable Filter ☒

File Generation **Multiple** **Organization**

Destination FileName **Matrix Attendance *atdMM*-*atdYY*** Extension **txt**

Every **1** Day of the Month

Run time (HH:MM) **12:30**

Retry Count **1**

Retry Interval **1** Hour

Attendance Period **Previous Month**

Enable Alerts For ☒ **Success** ☐ **Failure**

The **ATD Events** and **ACS Events** templates' schedule is shown below.

Schedule

Enable Filter ☐

File Generation: **Multiple** Organization: **Organization**

Destination FileName: **MatrixAttendance *from DD*-*fromMM*-*fromYY* to *toDD*-*toMM*-*toYY*** Extension: **txt**

☐ Interval Based ☒ Once a Day

Update Interval: Seconds

Run Time (HH:MM): **15:30**

Start Date: **28/05/2019**

Retry Count: **1**

Retry Interval: **1**

Enable Alerts For: ☒ Success ☐ Failure

Exporting Data

Schedule Export

For starting the export of file, after saving the schedule; click on **Start Service** button. The exported file will be exported at the path specified in Server configuration.

The data in the exported file is as per the Text file configuration shown below.

Matrix Attendance 01 to 10 - Notepad

Punch Date Shift Name IN Time OUT Time

01/01/2018 GS Chirag 09:00:00 19:00:00

GS Khushbu

02/01/2018 GS Chirag 09:15:00 19:30:00

GS Khushbu

03/01/2018 GS Chirag 09:00:54 19:00:53

GS Khushbu

04/01/2018 GS Chirag 09:16:29 19:16:27

Text File Configuration

Database Field: **OUTPUNCH_TIME** NVARCHAR(8) 0

Column Name: **OUT Time**

Start-End Position: **0** Length: **0**

Alignment: **Left** Padding: **Space**

Data Formatting: **None**

Add Edit Cancel Delete

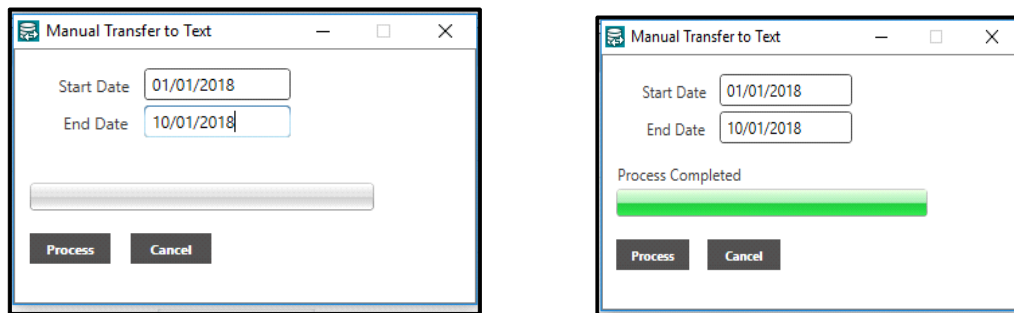
Sr No	Data Type	Value	Column Name	Start Pos	End Pos	Length
1	Database	PUNCH1	Punch Date			
2	Database	SCHEDULESHIFT	Shift			
3	Database	USERNAME	Name			
4	Database	PUNCH1_TIME	IN Time			
5	Database	OUTPUNCH_TIME	OUT Time			

Schedule

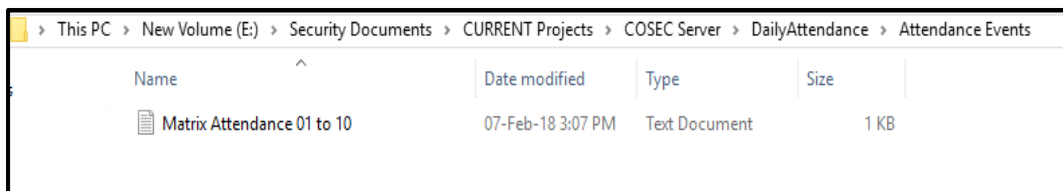
Add Edit Save Manual Transfer Cancel Filter

Manual Export

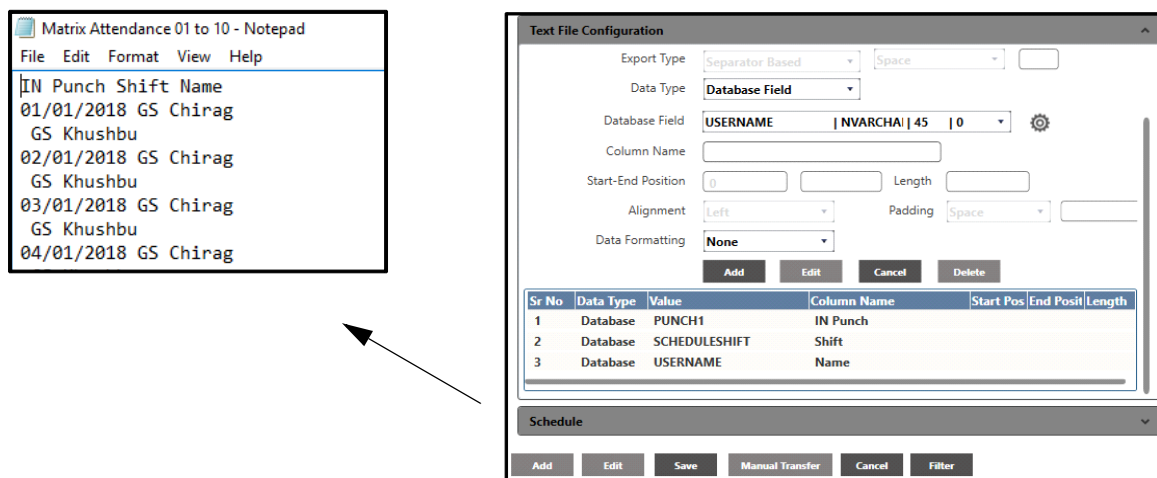
You can also do the Manual transfer of data by clicking **Manual Transfer** button.



The name of the exported text file is as per the Destination File name.



The data in the exported file is as per the Text file configuration shown below.



Export to DB2

The application allows the administrator to export access events from the COSEC application database to a destination **DB2 database server**.

Click on the **Server Configuration** button to start the configuring process.

The following page appears. Select the **Export to DB2** option in the **Integration Mode** field.



Integrate supports Export to DB2 version DB2 11.5.9 Z/OS

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Integration Mode: **Export to DB2**

COSEC Web Server

Web URL:

User Name:

Password:

DB2

Server:

Port:

Database Name:

User Name:

Password:

Test Connection

Edit **Save** **Cancel**

Click on the **Edit** button.

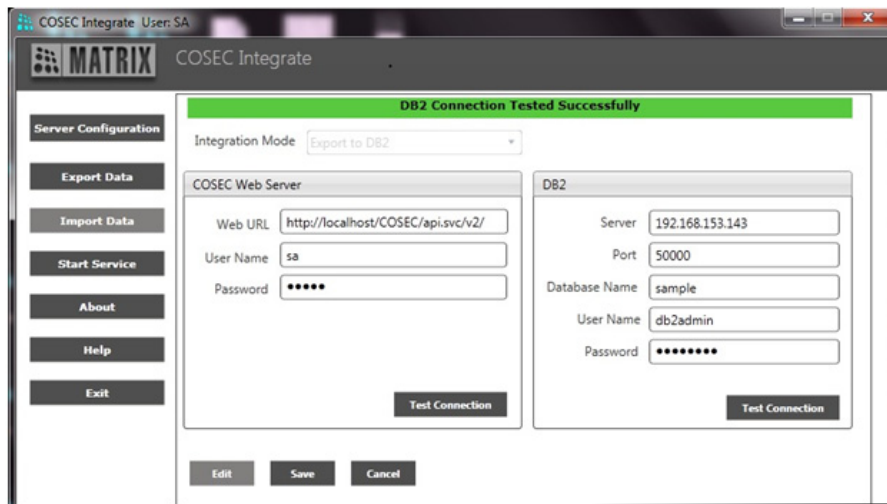
In the **COSEC Web Server** section:

- Specify the web url of the API service of the COSEC WEB application as shown.
- Enter the User Name and Password of the system administrator (sa) as set in the COSEC WEB application.

In the **DB2** destination database server section:

- Enter the database server name and port.
- Specify the database name of the destination database as per the site settings.
- Specify the database administrator ID as user name.
- Enter the password of the database administrator as per the site settings.

The **Test Connection** button is provided to test the connections with the web server as well as the DB2 database.

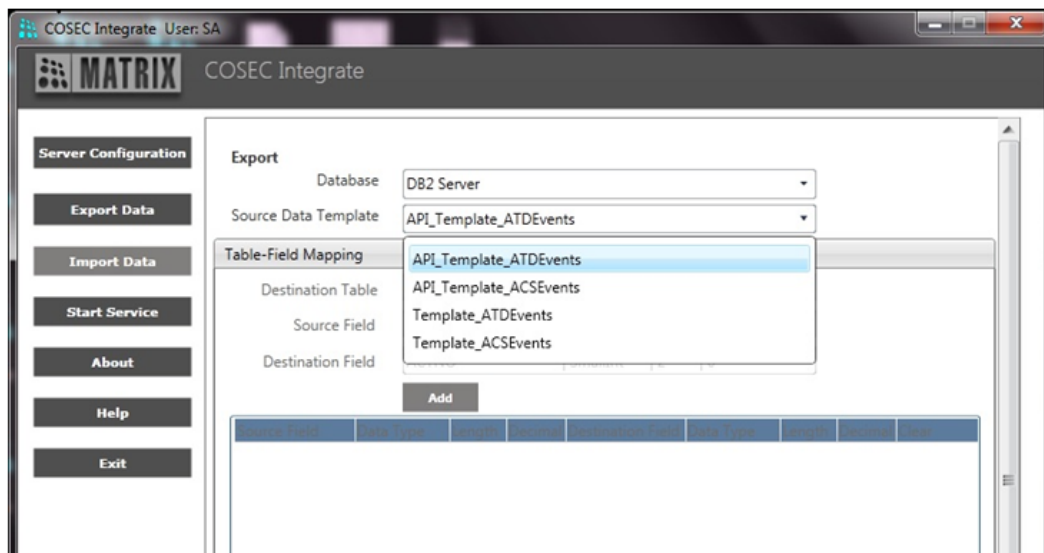


Click on **Save** once done.

Export Data Configuration

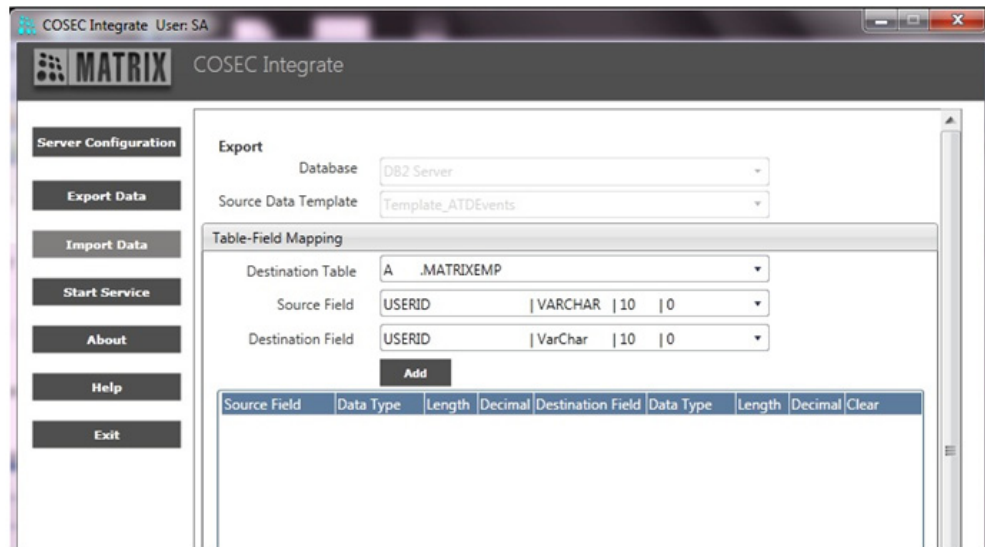
Click the **Export Data** button to map fields between source and destination tables.

For the DB2 Server Database, select a source template from the system-defined data templates or other custom export templates defined on COSEC that appear for selection.

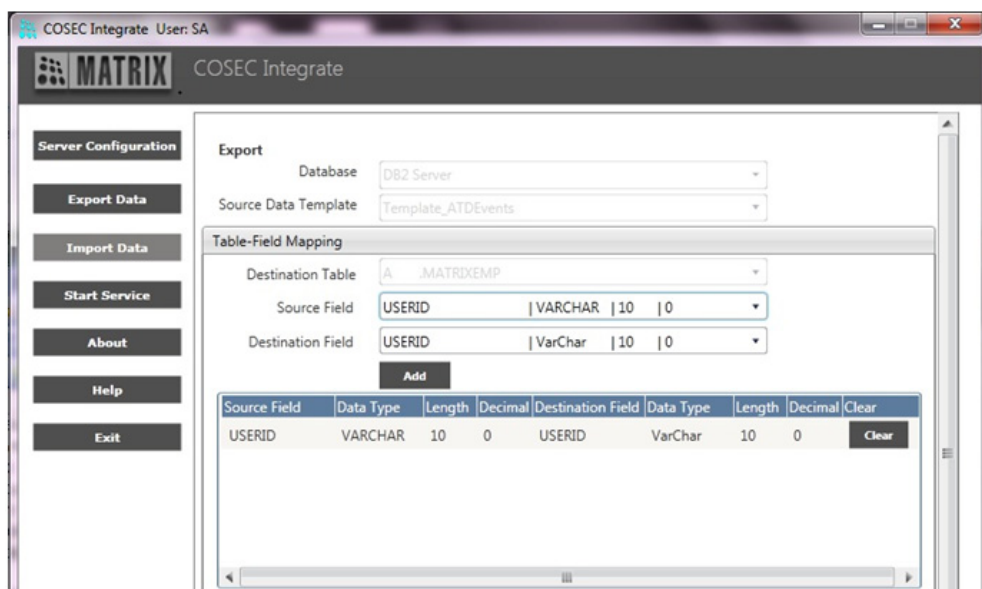


Each of the above database views would provide the relevant fields whose values can be exported from the COSEC database. Select the required data template and click on the **Edit** button.

Now the admin user can start the mapping of the fields from the source database to that of the destination database as shown.



- Select the **Destination Table** from the pull down list.
- Select the **Source field** from the COSEC database.
- Select the **Destination field** from the selected destination table.
- Click on the **Add** button. The mapped fields will be visible in the bottom grid as shown.



In the **Schedule** panel, user can set up a schedule for data update between source and destination databases or update data manually using the **Manual Transfer** option.

The screenshot shows a configuration window for COSEC INTEGRATE. At the top, under the 'Export' section, there are two dropdown menus: 'Database' set to 'DB2 Server' and 'Source Data Template' set to 'API_Template_ATDEvents'. Below this is a 'Table-Field Mapping' section with a dropdown arrow. The 'Schedule' section is expanded, showing various configuration options. It includes checkboxes for 'Active', 'SAP Integration', 'Enable Filter', 'Include Previously Failed', and 'Enable Alerts For'. The 'Active' checkbox is checked. The 'SAP Integration' checkbox is also checked. The 'Enable Filter' checkbox is unchecked. The 'Include Previously Failed' checkbox is unchecked. The 'Retry For Failed Records' is set to '1'. The 'Update Interval' is set to 'Interval Based' (selected with a radio button) and 'Once a Day' (unselected). The 'Update Interval' is set to 'Seconds' in a dropdown menu. The 'Run Time (HH:MM)' is set to ' / /'. The 'Start Date' is set to ' / /'. The 'Retry Count' is set to '1' in a dropdown menu. The 'Retry Interval' is set to '1' in a dropdown menu. The 'Enable Alerts For' section has two checkboxes: 'Success' and 'Failure', both of which are checked.

- Check the **Active** box to enable the schedule.
- The **Enable Filter** option is provided to enable the administrator to filter the users whose data is to be exported. Check this box and click on the **Filter** button. The Multiple selection window appears. Select the users whose data is to be exported.
- To use the exported data for SAP Integration, enable the **SAP Integration** checkbox.
- To set **Interval Based** data update, specify the **Update Interval**.
- To schedule data update **Once a Day**, specify the **Run time** in HH:MM format, **Start Date** (i.e. date since when export data is to be fetched from COSEC database), **Retry Count** and **Retry Interval**.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

- Click **Save** and start service.

Export to People Works

This feature allows the user to export data from the COSEC application database to a user-defined FTP location in the .XLSX format. The export filename will follow the below format:

“PeopleWorks<ddmmyyyy><hhmm>.xlsx”

Click **Server Configuration**.

In **Integration Mode** select **Export to PeopleWorks**.

Click **Edit** to configure the parameters.

The screenshot shows the 'MATRIX COSEC Integrate' application window. On the left is a sidebar with buttons: 'Server Configuration' (highlighted), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'COSEC Integrate' and contains the following elements:

- Integration Mode:** A dropdown menu currently set to 'Export to PeopleWorks'.
- COSEC Web Server:** A section with three input fields: 'Web URL' (containing 'http://localhost/COSEC/api.svc/v2'), 'User Name', and 'Password'. Below these fields is a 'Test Connection' button.
- Destination Location:** A section with a 'Saved Path' input field, a 'Sub-Folder' checkbox (checked), and two expandable sections: 'Authentication' and 'File Encryption'. A 'Save' button is located at the bottom of this section.
- Footer:** A row of four buttons: 'Edit', 'Save', 'Cancel', and 'Delete'.

Under **COSEC Web Server** configure the following:

- **Web URL:** Specify the Web URL of the API service of the COSEC WEB Server application.
- **User Name:** Enter the User Name as **sa** as set for the COSEC WEB Server application.
- **Password:** Enter the Password as set for the COSEC WEB Server application.
- Click **Save**.
- Click **Test Connection** to confirm that the connectivity is established with the COSEC WEB Server application.

Under **Destination Location**, configure the following:

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.

Click **Authentication** collapsible panel and configure the following:

The screenshot shows the 'MATRIX COSEC Integrate' application window. On the left is a sidebar with buttons: 'Server Configuration' (highlighted), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is divided into two panels. The left panel, titled 'COSEC Web Server', contains fields for 'Web URL' (pre-filled with 'http://localhost/COSEC/api.svc/v2'), 'User Name', and 'Password', along with a 'Test Connection' button. The right panel, titled 'Destination Location', contains a 'Saved Path' field, a 'Sub-Folder' checkbox (checked), and a collapsible 'Authentication' panel with 'User Name' and 'Password' fields. Below the 'Authentication' panel is a 'File Encryption' section with a 'Save' button. At the bottom of the window are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.
- **Password:** Enter the Password to be used for authentication while accessing the Path.

Click **File Encryption** collapsible panel and configure the following:

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.
- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. Maximum file size supported is 5 MB.



If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.

- Click **Save**.

PeopleWorks Export Configuration

Click the **Export Data** button to map fields between source and destination tables. Select the Database type as **Export to PeopleWorks**.

The screenshot shows the COSEC Integrate User Interface. On the left is a sidebar with buttons: Server Configuration, Export Data, Import Data, Start Service, About, Help, and Exit. The main window is titled 'COSEC Integrate' and has a 'File Configuration' section. In the 'Export' section, 'Database' is set to 'Export to PeopleWorks' and 'Source Data Template' is 'API_Template_Daily'. The 'File Configuration' section has a 'Data Type' dropdown set to 'Database Field'. Below it, 'Database Field' is 'ACTIVEFLAG' and 'Column Name' is empty. There are 'Add', 'Edit', 'Cancel', and 'Delete' buttons. A table lists the current configuration:

Sr No	Data Type	Value	Column Name
1	Serial No	SerialNo	SI No
2	Database	PROCESSDATE_D	Date
3	Database	USERID	Code
4	Database	USERNAME	EmpName
5	Database	DEPARTMENT	Department
6	Database	DESIGNATION	Designation

At the bottom, there is a 'Schedule' dropdown and a row of buttons: Add, Edit, Save, Manual Transfer, Cancel, and Filter.

Click on the **Edit** button.

Select a **Data Type** to configure fields. There are four data types to choose from:

- **Database Field:** Select a Database Field from the drop-down list to be added to the export file and define a new column name against it. Click **Add**.

The screenshot shows the 'File Configuration' window. 'Data Type' is 'Database Field'. 'Database Field' is 'JOINDT' and 'Column Name' is 'JoiningDate'. There are 'Add', 'Save', 'Cancel', and 'Delete' buttons. A table lists the current configuration:

Sr No	Data Type	Value	Column Name
9	Database	OUTPUNCH_TIME	Out
10	Database	EARLYOUT_HHMM	Early out
11	Database	EARLYIN_HHMM	Early In
12	Database	WORKTIME_HHMM	Work Hour
13	Database	JOINDT	JoiningDate

An arrow points to the row with 'JOINDT' and 'JoiningDate'. At the bottom, there is a 'Schedule' dropdown.

- **Fixed:** Select this option to set a fixed value for a field as shown below. For eg: the organization name remains common to all the employees, so it is considered as fixed value. Click **Add**.

The screenshot shows the 'File Configuration' dialog box. At the top, there are three input fields: 'Data Type' set to 'Fixed', 'Fixed Value' set to 'Matrix Comsec', and 'Column Name' set to 'Organization'. Below these fields are four buttons: 'Add', 'Edit', 'Cancel', and 'Delete'. At the bottom, there is a table with the following data:

Sr No	Data Type	Value	Column Name
9	Database	OUTPUNCH_TIME	Out
10	Database	EARLYOUT_HHMM	Early out
11	Database	EARLYIN_HHMM	Early In
12	Database	WORKTIME_HHMM	Work Hour
13	Fixed	Matrix Comsec	Organization

An arrow points to the 'Organization' column name in the last row of the table.

- **Custom Field:** Select this option to assign a custom value to a field. Click **Add**.
- **Serial No:** Select this option to set serial number as value for a column. Click **Add**.

The screenshot shows the 'File Configuration' dialog box. At the top, there are three input fields: 'Data Type' set to 'Custom Field', 'Custom Value' set to 'Database Field', and 'Column Name' set to 'Fixed'. Below these fields are four buttons: 'Add', 'Edit', 'Cancel', and 'Delete'. At the bottom, there is a table with the following data:

Sr No	Data Type	Value	Column Name
	Custom Field	Database Field	Fixed

The 'Custom Field' option is highlighted in the 'Data Type' dropdown menu.

In the **Schedule** section, user can set up a daily or monthly schedule for data export or export data manually using the **Manual Transfer** option.

Schedule

Active ☒

Enable Filter ☒

FileName Format **Date Only**

Append to FileName **Date (dd-mmm-yyyy)** **Time (HHMM)**

Schedule **Daily**

Every **1** Day of the Month

Run time (HH:MM) **09:00**

Retry Count **1**

Retry Interval **1** Hour

Daily Attendance Of ☒ Previous Day ☐ Current Day

Enable Alerts For ☒ Success ☐ Failure

Schedule

Active ☒

Enable Filter ☒

FileName Format **Date Only**

Append to FileName **Date (mmm-yyyy)** **None**

Schedule **Monthly**

Every **1** Day of the Month

Run time (HH:MM) **09:00**

Retry Count **1**

Retry Interval **1** Hour

Attendance Period **1** Day of **Previous Month** To **31** Day of **Previous Month**

Enable Alerts For ☒ Success ☐ Failure

The description of above fields is given in Export to MSSQL.

- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.

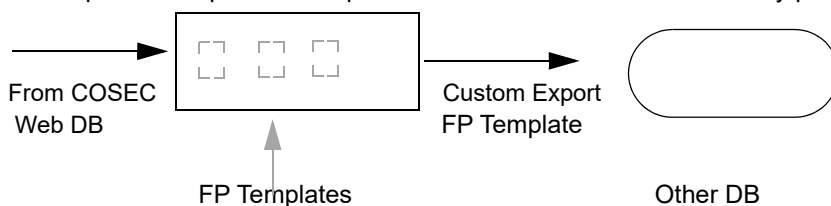


It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

Click **Save** and start service.

Export FP Template to File

It is required to export FP Template of selected user to some directory path in physical file.



Click **Server Configuration**.

In **Integration Mode** select **Export FP Template to File**.

Click **Edit** to configure the parameters.

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

Integration Mode: Export FP Template to File

COSEC Web Server

Web URL:

User Name:

Password:

Test Connection

Destination Location

☐ Local Folder ☐ FTP ☐ SFTP

Saved Path:

Sub-Folder: ☒

Separator:

File Encryption

Enable: ☐

Public Key: No File Chosen

Save

Edit Save Cancel Delete

Under **COSEC Web Server** configure the following:

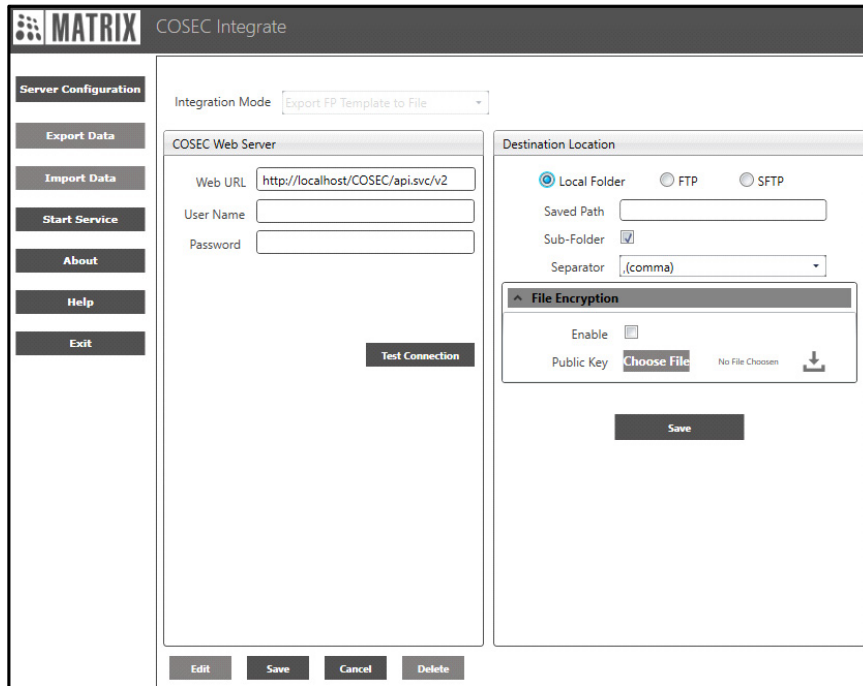
- **Web URL:** Specify the Web URL of the API service of the COSEC WEB Server application.
- **User Name:** Enter the User Name as **sa** as set for the COSEC WEB Server application.
- **Password:** Enter the Password as set for the COSEC WEB Server application.
- Click **Save**.
- Click **Test Connection** to confirm that the connectivity is established with the COSEC WEB Server application.

Under **Destination Location**, configure the following:

- Select the desired option — Local Folder, FTP or SFTP.

Local Folder

- If you select **Local Folder**, configure the following:



The screenshot shows the 'COSEC Integrate' web application. On the left is a sidebar with navigation links: 'Server Configuration' (selected), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main content area is titled 'COSEC Integrate' and contains two panels. The 'COSEC Web Server' panel on the left has fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', along with a 'Test Connection' button. The 'Destination Location' panel on the right has radio buttons for 'Local Folder' (selected), 'FTP', and 'SFTP'. It also includes a 'Saved Path' text box, a 'Sub-Folder' checkbox (checked), and a 'Separator' dropdown menu (set to ',(comma)'). Below these is a 'File Encryption' collapsible panel with an 'Enable' checkbox, a 'Public Key' section with a 'Choose File' button and 'No File Chosen' text, and a 'Save' button at the bottom. At the very bottom of the main area are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.
- **Separator:** Select the separator which will be used to separate the fields in the exported file.

Click **File Encryption** collapsible panel and configure the following:

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.
- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. The maximum file size supported is 5MB.



- *If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.*

- Click **Save**.

FTP

- If you select **FTP**, configure the following:

The screenshot shows the 'MATRIX COSEC Integrate' web interface. On the left is a sidebar with buttons: 'Server Configuration' (highlighted), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'COSEC Integrate' and contains two panels. The 'COSEC Web Server' panel on the left has fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button below. The 'Destination Location' panel on the right has radio buttons for 'Local Folder', 'FTP' (selected), and 'SFTP'. It includes a 'Saved Path' text box, a 'Sub-Folder' checkbox (checked), and a 'Separator' dropdown menu (set to '(comma)'). Below these are two collapsible sections: 'Authentication' and 'File Encryption'. At the bottom of the 'Destination Location' panel is a 'Save' button. At the very bottom of the main area are buttons for 'Edit', 'Save', 'Cancel', and 'Delete'.

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.
- **Separator:** Select the separator which will be used to separate the fields in the exported file.

Click **Authentication** collapsible panel and configure the following:

This screenshot is similar to the previous one, but the 'Authentication' collapsible panel in the 'Destination Location' section is now expanded. It reveals two input fields: 'User Name' and 'Password'. The 'File Encryption' panel remains collapsed. All other elements, including the sidebar, 'COSEC Web Server' panel, and bottom navigation buttons, are identical to the previous screenshot.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.
- **Password:** Enter the Password to be used for authentication while accessing the Path.

Click **File Encryption** collapsible panel and configure the following:

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.
- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. Maximum file size supported is 5 MB.



If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.

- Click **Save**.

SFTP

- If you select **SFTP**, configure the following:

The screenshot shows the 'COSEC Integrate' web application interface. On the left is a sidebar with navigation buttons: 'Server Configuration', 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'COSEC Integrate' and contains two primary configuration panels. The 'Integration Mode' dropdown is set to 'Export FP Template to File'. The 'COSEC Web Server' panel includes fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button. The 'Destination Location' panel has radio buttons for 'Local Folder', 'FTP', and 'SFTP' (which is selected). Below these are fields for 'Server', 'Saved Path', 'Sub-Folder' (with a checked checkbox), 'Separator' (set to ',(comma)'), and 'With Key'/'Without Key' radio buttons (with 'With Key' selected). An 'SSH Host Key FP' field is also present. At the bottom of this panel are expandable sections for 'Authentication' and 'File Encryption', and a 'Save' button. At the very bottom of the main area are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **Server:** Specify the SFTP Server IP Address where the exported files are to be stored.

COSEC Integrate communicates with the SFTP Server using the default port number 22. If you wish to use any other port, then you need to configure the same in the format Server IP Address:Port. For example if Port 33 is to be used then configure the Server as 192.168.104.20:33.

- **Saved Path:** Specify the Path at which the exported files are to be stored.
- **Sub-Folders:** Select the Sub-Folders check box to enable a folder hierarchy to be created at the export destination for the exported file.
- **Separator:** Select the separator which will be used to separate the fields in the exported file.
- For additional authentication and security, you can select the desired option — **With Key** or **Without Key**.

If you select **With Key**, then configure the **SSH Host Key FP**.

The **SSH Host Key FP** servers as a unique identifier for the Server. This is a cryptographic representation of the Servers Public Key. It is used to verify the authenticity of the Server during the connection process. It is used to ensure that the Server the client is connecting to is the same Server that it connected with previously.

This key is provided by the Administrator of the SFTP Server to the clients.

If you select **Without Key**, then no key is required.

Click **Authentication** collapsible panel and configure the following:

The screenshot shows the 'COSEC Integrate' application window. On the left is a sidebar with buttons: 'Server Configuration' (selected), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'COSEC Integrate' and contains two panels: 'COSEC Web Server' and 'Destination Location'. The 'COSEC Web Server' panel has fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name', and 'Password', with a 'Test Connection' button. The 'Destination Location' panel has radio buttons for 'Local Folder', 'FTP', and 'SFTP' (selected). It also has fields for 'Server', 'Saved Path', 'Sub-Folder' (checked), 'Separator' (comma), 'With Key' (selected), 'Without Key', and 'SSH Host Key FP'. Below these is the 'Authentication' panel, which is expanded to show 'Mode' (Password-Based), 'User Name', and 'Password' fields. At the bottom is a 'File Encryption' panel. A 'Save' button is at the bottom right of the main area. At the very bottom are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

This screenshot is similar to the one above, but the 'Authentication' panel is expanded to show 'Mode' (Key-Based), 'User Name', 'Private Key' (with a 'Choose File' button and 'No File Chosen' text), and 'Passphrase' fields. The 'File Encryption' panel is also visible. The 'Save' button is at the bottom right of the main area. At the very bottom are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

- **Mode:** Select the desired mode for authentication — **Password-Based**, **Key-Based**.

If you select **Password-Based**, configure the following:

In Password-Based, when a client signs in, the Server checks the User Name and Password combination and then approves/denies the request.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.

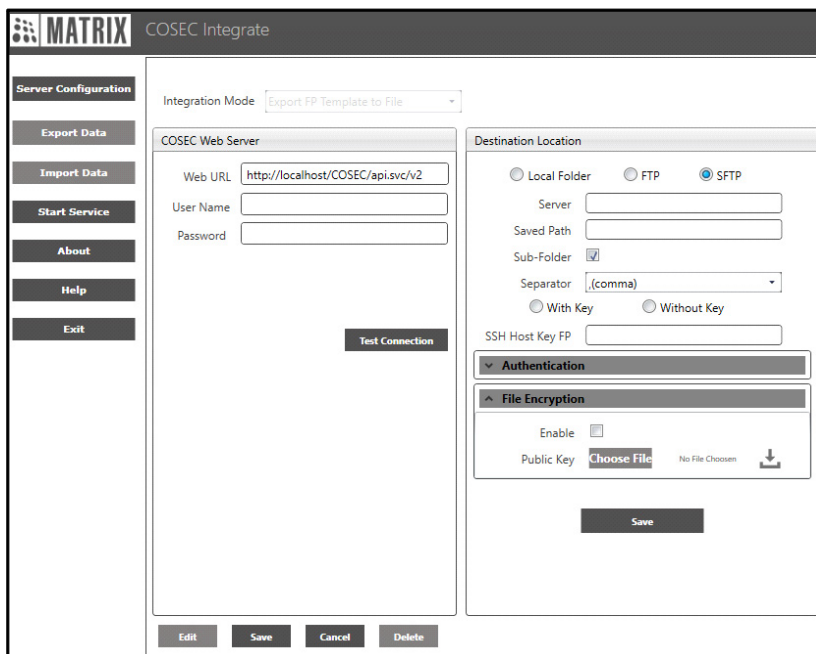
- **Password:** Enter the Password to be used for authentication while accessing the Path.

If you select **Key-Based**, configure the User Name, Private Key and Passphrase.

In Key-Based, when a client signs in, a pair of keys — Private and Public — are used for authentication. The Public Key is uploaded in the SFTP Server while the Private Key is provided to the client.

- **User Name:** Enter the User Name to be used for authentication while accessing the Path.
- **Private Key:** Click **Choose** and select the key file which is to be used for authentication.
- **Passphrase:** Enter the Passphrase. This is used in combination with the Private Key to acquire the SFTP Server access.

Click **File Encryption** collapsible panel and configure the following:



The screenshot shows the MATRIX COSEC Integrate web interface. On the left is a sidebar with navigation links: Server Configuration, Export Data, Import Data, Start Service, About, Help, and Exit. The main area is divided into two panels. The left panel, titled 'COSEC Web Server', contains fields for Web URL (http://localhost/COSEC/api.svc/v2), User Name, and Password, along with a 'Test Connection' button. The right panel, titled 'Destination Location', has radio buttons for Local Folder, FTP, and SFTP (which is selected). Below these are fields for Server, Saved Path, Sub-Folder (checked), Separator (comma), and With Key/Without Key. There is also an SSH Host Key FP field. A collapsible panel labeled 'File Encryption' is expanded, showing an 'Enable' checkbox and a 'Public Key' field with a 'Choose File' button. At the bottom of the main area are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

The file will be encrypted using PGP (Pretty Good Privacy) encryption method using AES algorithm.

- **Enable:** Select this check box to enable encryption. If enabled the file will be encrypted using the Public Key provided by the Third Party and then will be saved on the Path.
- **Public Key:** Click **Choose** and select the key file which is to be used for encryption. This will be provided by the Third Party. Maximum file size supported is 5 MB.



If File Encryption check box is enabled, then Third Party must take the last updated file based on time stamping from the Saved Path.

- Click **Save**.

Export Data Configuration

This option enables the admin user to specify the fields whose values are to be exported to the FP template file.

The screenshot shows a web form titled "Export". At the top, there is a "Database" dropdown menu set to "Export FP Template to File". Below this is a section labeled "User Selection". Inside this section, there is a "User ID" input field containing the text "1220" and a "Select" button. Below the input field is a table with three columns: "User ID", "Name", and "Clear". The table is currently empty. At the bottom of the form is an "Export" button.

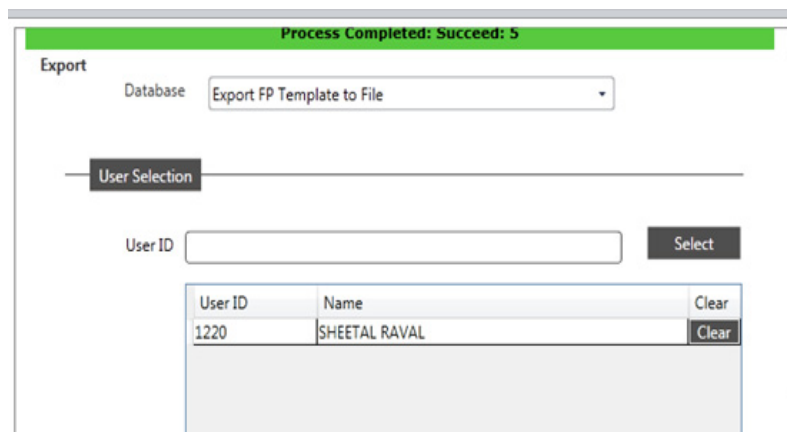
User ID	Name	Clear
---------	------	-------

Enter the **User ID** of the user whose FP templates are to be backed up. And click on **Select** button. The user ID and name will be displayed in the grid.

This screenshot shows the same form as the previous one, but now the "User ID" input field is empty. The table below it now contains one row of data. The "User ID" column contains "1220" and the "Name" column contains "SHEETAL RAVAL". There is a "Clear" button next to each row in the table. The "Export" button remains at the bottom.

User ID	Name	Clear
1220	SHEETAL RAVAL	Clear

Now click on **Export** button. The export completion will be shown as below:



Process Completed: Succeed: 5

Export

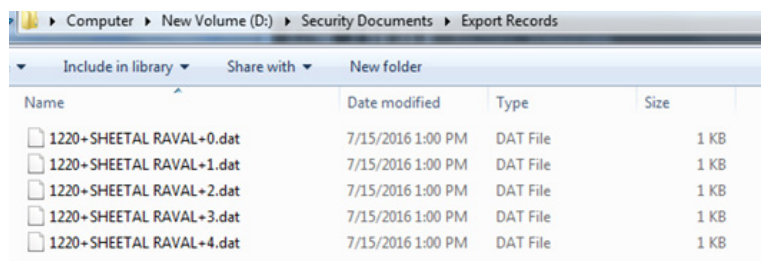
Database: Export FP Template to File

User Selection

User ID: Select

User ID	Name	Clear
1220	SHEETAL RAVAL	Clear

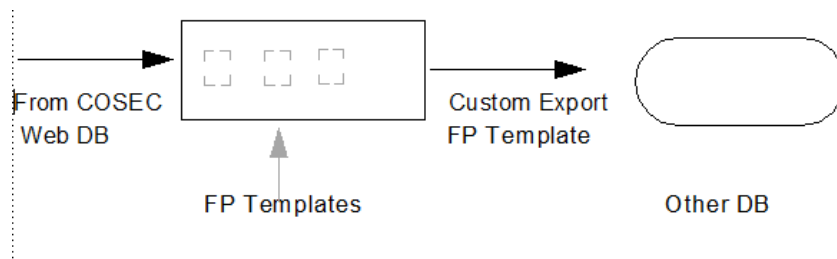
Here you can find 5 FP templates of selected user which are exported as individual files at the Destination location.



Name	Date modified	Type	Size
1220+SHEETAL RAVAL+0.dat	7/15/2016 1:00 PM	DAT File	1 KB
1220+SHEETAL RAVAL+1.dat	7/15/2016 1:00 PM	DAT File	1 KB
1220+SHEETAL RAVAL+2.dat	7/15/2016 1:00 PM	DAT File	1 KB
1220+SHEETAL RAVAL+3.dat	7/15/2016 1:00 PM	DAT File	1 KB
1220+SHEETAL RAVAL+4.dat	7/15/2016 1:00 PM	DAT File	1 KB

Custom Export- FP Template

Provision is required in Integrate from where user can select physical file of FP templates and insert them to configured database's table with various user details like user id, name, user photo and finger print location. This purpose is served through "Custom Export of FP Template".



Click on the **Server Configuration** option and select the **Custom Export- FP Template** option as the **Integration Mode**.

Click on the **Edit** button.

COSEC Web Server	Template Location
Web URL <input type="text" value="http://localhost/COSEC/api.svc/v2"/>	Database Type <input type="text" value="Sql Server"/>
User Name <input type="text" value="sa"/>	Server <input type="text" value="(local)\sqlexpress"/>
Password <input type="password" value="....."/>	Database Name <input type="text" value="COSEC_HO"/>
	User Name <input type="text" value="sa"/>
	Password <input type="password" value="....."/>
<input type="button" value="Test Connection"/>	<input type="button" value="Test Connection"/>

In the **COSEC Web Server** section:

- Specify the web url of the API service of the COSEC WEB application as shown.
- Enter the User Name and Password of the sa user as set in the COSEC WEB application.

The **Test Connection** button is provided to test the connections with the web server

In the **Template Location** section:

- The **Database Type** can be selected as SQL SERVER or ORACLE server.
- **Server:** Enter the database server name in the following format - **Database server name\Instance Name** e.g. dbserver\sqlexpress.
- **Database Name:** Specify the database name of the destination database as per the site settings. Eg: COSEC_HO is the destination database to which you can export the data.



For newly created database, ensure that you have set the password in COSEC Web application. Then only Test connection from COSEC Integrate with Web server will be successful.

- **User Name:** Specify the database administrator ID in this field. This is the username which you have set while installing SQL Server Management Studio in your computer.
- **Password:** Enter the password of the Database administrator as per the site settings. This is the password which you have set while installing SQL Server Management Studio in your computer.

The **Test Connection** button is provided to test the connections with the web server as well as the SQL Server database.

Click on **Save** once done.

In the event of selecting the **Export to Oracle Server** option in the **Integration Mode** field, specify the Oracle server destination address as well as the username and the password (case-sensitive for Oracle Server) in the respective fields as shown below:

Test the connection and Save the configuration.

Export Data Configuration

This option enables the admin user to specify the fields whose values are to be exported.

Select the Database "**Custom Export-FP Template SQL Server**".

Select the Mode as **Add Templates** to add the FP templates or **Delete Templates** to delete the FP templates.

Click the **Table Mapping** button. Then select the table where the user details are to be mapped.

Table Name:

Field Name: | varchar | 15 | 0

Mapped Field Name: | VARCHAR | 15 | 0

Table Field	Data Type	Length	Decimal	Mapped Field	Data Type	Length	Decimal	Clear
UserID	VARCHAR	15	0	UserID	varchar	15	0	<input type="button" value="Clear"/>

You have to map all the user fields shown below to the desired field selected from “Field Name” in above table mapping.

Mapped Field Name: | IMAGE | 0 | 0

Table Field	Data Type	Length	Decimal
UserID	VARCHAR	15	0
Name	VARCHAR	45	0
FPLocation	VARCHAR	2	0
RowData	IMAGE	0	0
UserPhoto	IMAGE	0	0

Eg: Name is mapped with locationmac as shown in second row.

Table Name:

Field Name: | numeric | 5 | 0

Mapped Field Name: | IMAGE | 0 | 0

Table Field	Data Type	Length	Decimal	Mapped Field	Data Type	Length	Decimal	Clear
UserID	VARCHAR	15	0	UserID	varchar	15	0	<input type="button" value="Clear"/>
Name	VARCHAR	45	0	locationmac	varchar	17	0	<input type="button" value="Clear"/>
FPLocation	VARCHAR	2	0	EvtSourceDet	varchar	40	0	<input type="button" value="Clear"/>
RowData	IMAGE	0	0	comments	varchar	50	0	<input type="button" value="Clear"/>
UserPhoto	IMAGE	0	0	MID	numeric	5	0	<input type="button" value="Clear"/>

After mapping all the user fields, click on **Save** button.

Now click on **Browse** button and select the FP template from the path (Local folder/FTP/SFTP) where the templates are stored.




Select FP Template

Database
Custom Export-FP Template SQL Server
Table Mapping

Mode
Add Templates

Add Templates

Select FP Template
Browse

User Photo	User ID	User Name	FP Location	File Path	Edit	Remove
	1220	SHEETAL RAVAL	1	D:\Security Documents \Export Records \1220+SHEETAL RAVAL+1.dat		

Add

The template with User photo, ID, Name and FP location will appear as shown above.

Finally click **Add** button. System will insert/update records in mapped template table.

Clicking **Remove** will remove all records from mapped template table with selected User ID.

Export to Progress OpenEdge

Click on the **Server Configuration** button to configure the Web server and Destination database for Export.

Select the **Export to Progress OpenEdge** option in the **Integration Mode** field. Click on the **Edit** button.



Integrate supports Export to Progress OpenEdge version OpenEdge 12.8

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Integration Mode: **Export to Progress OpenEdge**

COSEC Web Server

Web URL:

User Name:

Password:

Test Connection

Progress OpenEdge

Server:

Driver Name:

Port:

Database Name:

User Name:

Password:

Test Connection

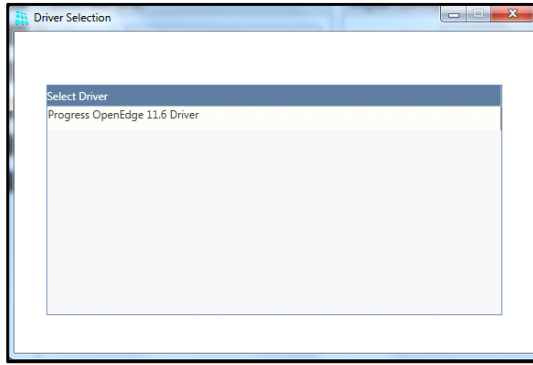
Edit **Save** **Cancel** **Delete**

In the **COSEC Web Server** section:

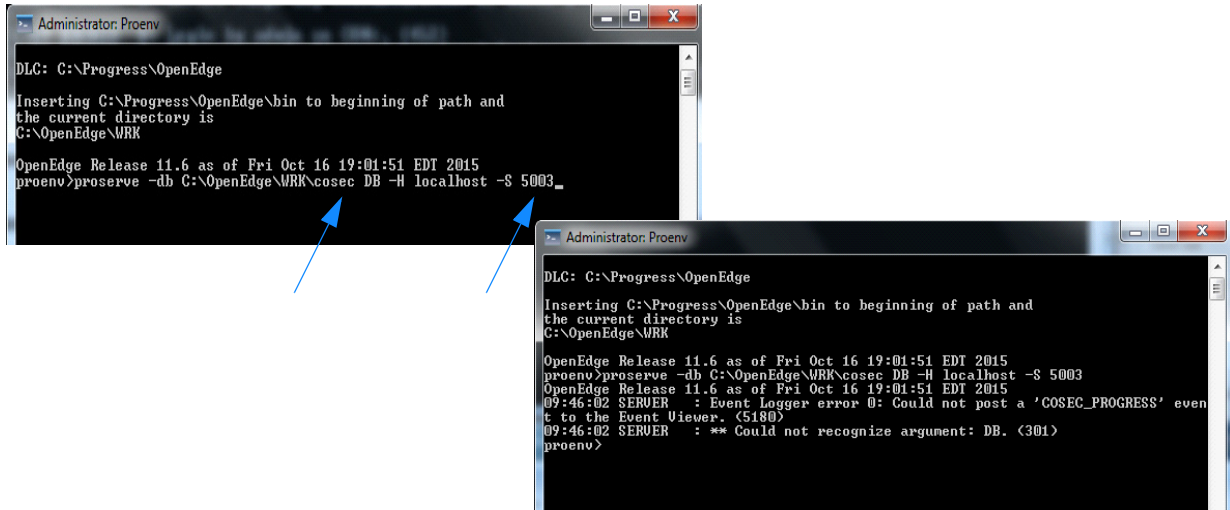
- Specify the web url of the api service of the COSEC WEB application as shown.
- Enter the User Name and Password of the sa user as set in the COSEC WEB application.

In the **Progress OpenEdge** section:

- **Server:** Enter the server name with which the Progress OpenEdge database is started.
- **Driver Name:** Select the Progress OpenEdge driver from the picklist. It is the software driver which will appear in picklist, once the database is installed.

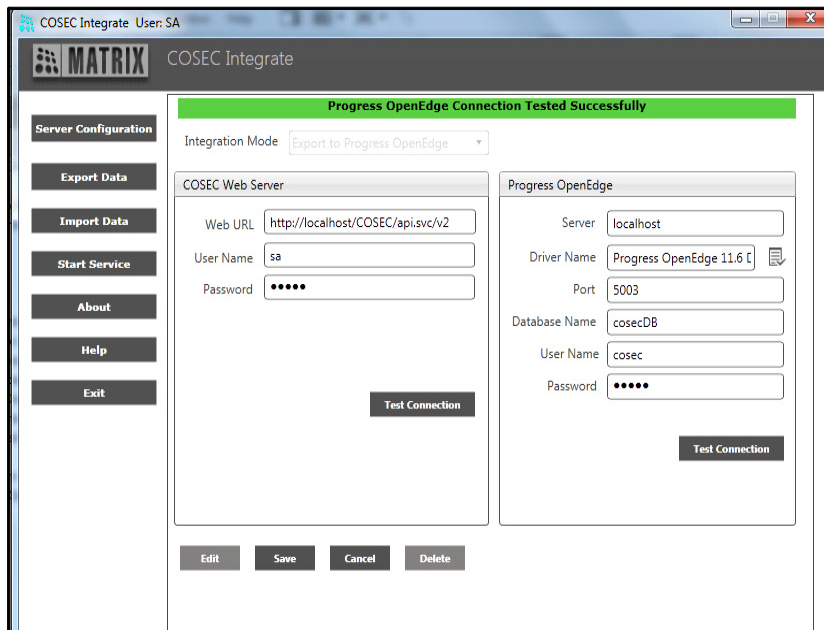


- **Port:** Enter the port number at which the Progress OpenEdge database is running. It is the port number(eg: 5003) entered in command prompt while starting the database as shown below.
- **Database Name:** Enter the database name with which Progress OpenEdge database is started. It is case sensitive. Thus if Database is started with name cosecDB as shown below then enter the name as "cosecDB".



- **User Name:** Specify the username as entered while creating the database.
- **Password:** Specify the password as entered while creating the database. Eg: Username is cosec and Password is cosec.

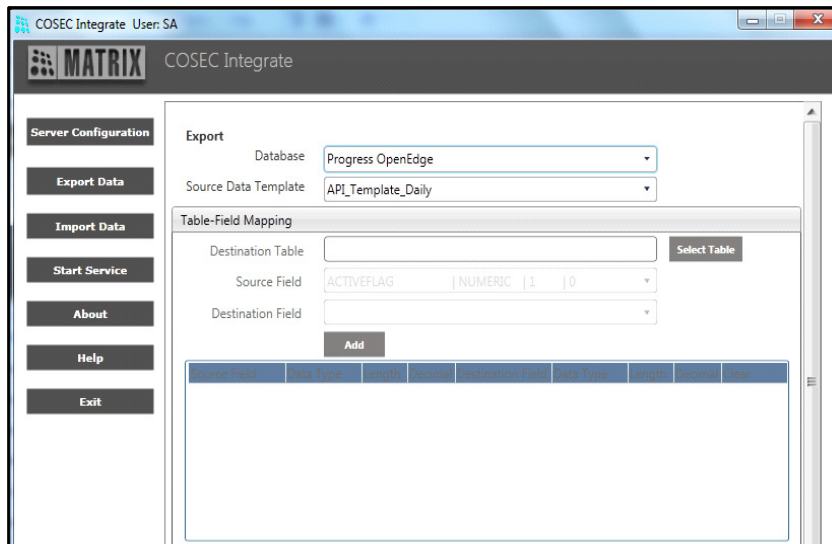
The **Test Connection** button is provided to test the connections with the web server as well as the Progress OpenEdge database.



Click on **Save** button to save the server configuration.

Export Data Configuration

This option enables the admin user to map the fields from the COSEC database tables to fields in a third party database. Click on the **Export Data** button. The following page appears.



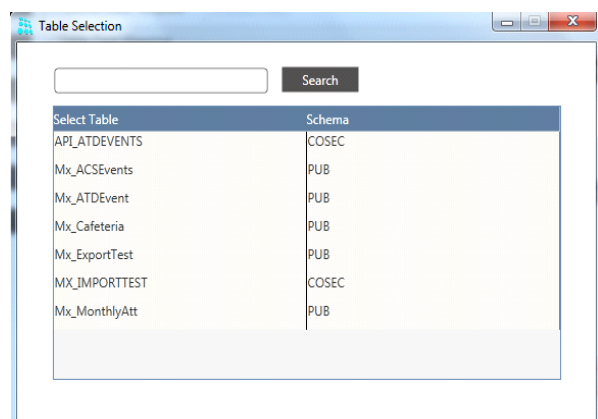
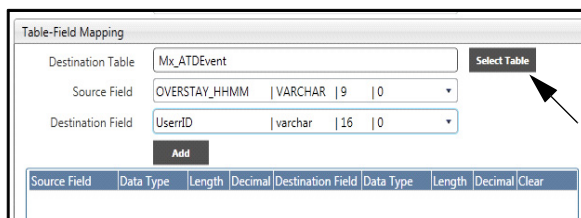
The COSEC INTEGRATE application provides four data templates in line with the default **Database Views** as shown. The COSEC System provides the following four Database views which would provide the relevant field options to be mapped with the fields of a destination database.

- Monthly Attendance Summary
- Daily Attendance Detail
- Attendance Events
- Access Control Events

Each of the above database views would provide the relevant fields whose values can be exported from the COSEC database. Select the required data template and click on the **Edit** button at the bottom of the page.

Now the admin user can start the **mapping of the fields** from the source database to that of the destination database as shown.

- Select the **Destination Table** by clicking **Select Table** button. The table selection picklist appears as below.



Select Table	Schema
API_ATDEVENTS	COSEC
Mx_ACSEvents	PUB
Mx_ATDEvent	PUB
Mx_Cafeteria	PUB
Mx_ExportTest	PUB
MX_IMPORTTEST	COSEC
Mx_MonthlyAtt	PUB

- Select the **Source field** from the COSEC database.

- Select the **Destination field** from the selected destination table.
- Click on the **Add** button. The mapped fields will be visible in the bottom grid as shown.

Source Field	Data Type	Length	Decimal	Destination Field	Data Type	Length	Decimal	Clear
OVERSTAY_HHMM	VARCHAR	9	0	UserID	varchar	16	0	Clear
AUTHORIZEDCOFF	VARCHAR	9	0	EventID	varchar	32	0	Clear
LATEIN_HHMM	VARCHAR	9	0	EventType	varchar	16	0	Clear



In the case of Attendance Events and Access Control Events the user needs to map the UserID and the EventDateTime_D source fields to fields in the destination table.

Map the UserID, PMonth and Pyear source fields to appropriate fields in the destination table in the case of the Monthly Attendance Summary.

Map the UserID and ProcessDate_D source fields to appropriate fields in the destination table in the case of the Daily Attendance Detail.

The **Schedule** section enables the admin user to schedule the data export process. The schedule option varies based on the selected Source Data Template. The **Daily Attendance detail** will have the following options as shown.

- Check the **Active** box to enable the schedule.
- The **Enable Filter** option is provided to enable the administrator to filter the users whose data is to be exported. Check this box and click on the **Filter** button. The Multiple selection window appears. Select the users whose data is to be exported.
- Specify the day of the month on which the export process is to be run.
- Specify the **Run time** in HH:MM format when the export process is to be run.
- Set the **Retry Count** from the drop down list.
- Set the **Retry Interval** in hours from the drop down list. This parameter specifies the time period between successive retries.
- Specify the **Attendance Period** by specifying the starting and the ending day of the attendance period for which the data is to be exported.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

Select any one option for data transfer i.e, Daily or Monthly in the field **Schedule**. On selection of Monthly option, user can set data transfer process to run only once in a month.

User can configure to transfer data for either previous day's attendance data or current day's attendance data with respect to schedule run day.

The **Monthly Attendance Summary** will have the following unique options:

- Select the **Attendance Period** for which the monthly Attendance summary data is to be exported. The Admin user can select either the **previous month** or **current month** option.

The 'Schedule' window contains the following fields and options:

- Active:** ☐
- Enable Filter:** ☐
- Every:** **Day of the Month**
- Run time (HH:MM):**
- Retry Count:**
- Retry Interval:** **Hour**
- Attendance Period:**
- Enable Alerts For:** ☒ **Success** ☐ **Failure**

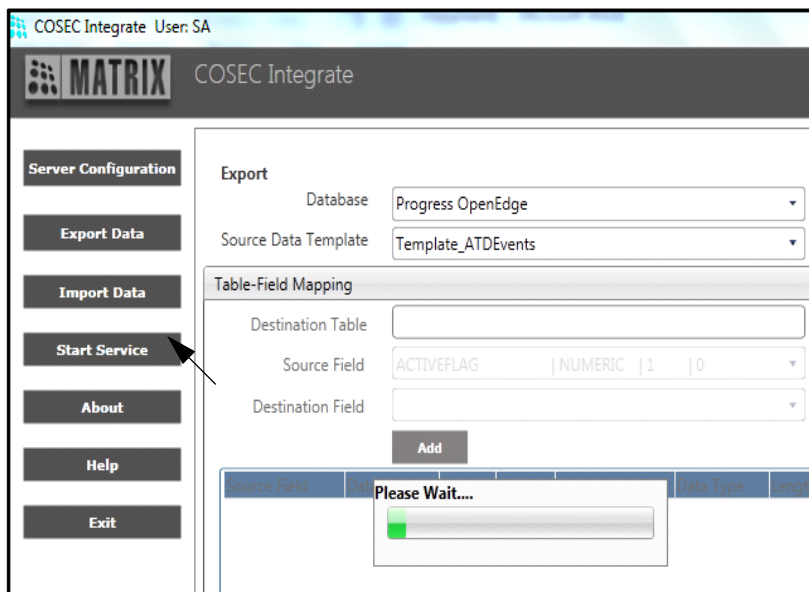
On selecting the **Attendance Events** or the **Access Control Events** the following schedule options will be available.

The 'Schedule' window contains the following fields and options:

- Active:** ☐
- Enable Filter:** ☐
- Include Previously Failed:** ☐
- Retry For Failed Records:**
- Update Interval:** **Seconds** (selected from dropdown)
- Run Time (HH:MM):**
- Start Date:**
- Retry Count:**
- Retry Interval:**
- Enable Alerts For:** ☒ **Success** ☐ **Failure**

- Check the **Active** box to enable the schedule.
- Set the filter parameters as required.
- For **Interval based** schedule; Specify the **Update Interval** in seconds, minutes or hours to define the frequency at which the application will update the destination database.
Specify the **Start Date** from which the export process is to be initiated.
- For **Once a Day** schedule, Specify the Run Time at which export will be initiated. You can mention Retry count and Retry Interval for which the retry for export will be done in case of failure.

After defining the above parameters, the admin user has to click on the **Start Service** button.



Import from MS SQL/Oracle/Postgre

The application allows the user to import user data from an external SQL, Oracle or Postgre database.

Click on the **Server Configuration** button to start the configuring process. The following page appears.

Select the **Import from MS SQL Server** option in the **Integration Mode** field. Click on the **Edit** button.



Integrate supports Import from MS SQL from version SQL Server 2005 to SQL Server 2022.

SQL Server 2005 and SQL Server 2008 R2:

- *for installation you need Windows 7 or below versions.*
- *to establish remote connections in these versions from the PC in which Integrate is installed, make sure you have enabled TLS 1.0 and 1.1 (that is, Best Practices settings).*

In the **COSEC Web Server** section:

- Specify the web URL of the API service of the COSEC WEB application as shown.
- Enter the User Name and Password of the SA user as set in the COSEC WEB application.

The screenshot shows the 'COSEC Integrate User: SA' window. On the left is a sidebar with buttons: 'Server Configuration' (highlighted), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is divided into two panels. The top panel has 'Integration Mode' set to 'Import From MS SQL Server'. Below it are two panels: 'COSEC Web Server' and 'Source Database'. The 'COSEC Web Server' panel contains fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name' (sa), and 'Password' (masked with dots), with a 'Test Connection' button below. The 'Source Database' panel contains fields for 'Database Type' (SQL Server), 'Server' (ATHIRANAIR\SQLEXPRESS), 'Database Name' (AthiraCosec12), 'User Name' (sa), and 'Password' (masked with dots), with a 'Test Connection' button below. At the bottom of the main area are buttons for 'Edit', 'Save', 'Cancel', and 'Delete'.

In the Source Database Server section:

- Select the **Database Type** as SQL SERVER.
- **Server:** Enter the database server name in the following format:
- **Database server name\Instance Name** e.g. dbserver\sqlexpress.
- **Database Name:** Specify the database name of the source SQL database as per the site settings.
- **User Name:** Specify the database administrator ID in this field.
- **Password:** Enter the password of the Database administrator as per the site settings.

The **Test Connection** button is provided to test the connections with the web server as well as the MS SQL or Oracle Server database.

Click on **Save** once done.

In the event of selecting the **Import from Oracle Server** option in the **Integration Mode** field, specify the source Oracle server address as well as the user name and the password (case-sensitive for Oracle server) in the respective fields as shown.



Integrate supports Import from Oracle from version Oracle 10g to Oracle 23AI.

The screenshot shows a 'Server Configuration' window with a sidebar on the left containing buttons: 'Server Configuration' (highlighted), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area has a dropdown for 'Integration Mode' set to 'Import From Oracle Server'. Below this are two panels: 'COSEC Web Server' and 'Oracle'. The 'COSEC Web Server' panel has fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name' (sa), and 'Password' (masked with dots), with a 'Test Connection' button. The 'Oracle' panel has fields for 'Server' (192.168.102.38), 'User Name' (cosec1), and 'Password' (masked with dots), with a 'Test Connection' button. At the bottom are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.

In the event of selecting the **Import from Postgre SQL** option in the **Integration Mode** field, specify the source Postgre SQL server address, Port number as well as the user name and the password (case-sensitive for Postgre SQL server) in the respective fields as shown.



Integrate supports Import from Postgre SQL from PostgreSQL 10.23 to PostgreSQL 12.18

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

Integration Mode: Import From Postgre

COSEC Web Server

Web URL: http://localhost/COSEC/api.svc/v2

User Name: sa

Password:

Test Connection

Postgre SQL

Server: Postgre SQL

Port: 5060

Database Name: dbserver\postgresql

User Name: admin

Password:

Test Connection

Edit **Save** **Cancel** **Delete**

Import Data Configuration

After completing the server configuration, click on **Import Data** button. The page appears as shown below.

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

Import

Source: MS SQL Server

Data: User Details

Fields Mapping

Source Table: Mx_AbsenteePolicyMst

Source Field: ABPLCID | numeric | 2 | 0

Destination Field: AADHAR-NO | NVARCHA | 12 | 0

Add

MS SQL Field	Data Type	Length	Decima	Destination Field	Data Type	Length	Decima	Clear
--------------	-----------	--------	--------	-------------------	-----------	--------	--------	-------

Schedule

Edit Save Manual Transfer Cancel

Source: If import from SQL server is to be done then the source will be MS SQL Server. If import from Oracle is to be done then the source will be Oracle.

Data: You can select the option as User Details to import the details of user, User-Wise Shift Assignment to import the shifts assigned to user on specific dates, Leave Transactions to import leave transactions and Leave Balance to import the available leave balance.

Source: MS SQL Server

Data: User Details

User Details

User-Wise Shift Assignment

Leave Transactions

Leave Balance

Now click on the **Edit** button. The Admin user can start mapping of the fields from the external source database table to that of the destination COSEC database table as shown.

- Select the **Source Table** whose fields are to be mapped.

Field	Data Type
Mx_AbsenteePolicyMst	
Mx_AccessClusterDtl	
Mx_AccessClusterMst	
Mx_AccessGroupDet	
Mx_AccessGroupMst	
Mx_AccessPolicyMst	
Mx_AccessRouteDet	
Mx_AccessRouteMst	
Mx_AccessZoneMst	
Mx_ACSEventTrn	
Mx_ACSEventTrnbak	
Mx_ActivityFilter	

- Select the **Source field** from the COSEC database. Source field is dependent on the Source selected from the Source Table.

E.g: If Mx_LeaveBal is selected as source from the Source table then the Source field will show all the fields related to leave balance as shown below.

SQL Field	Data Type
AVLLeave	numeric 6 1
CFBal	numeric 7 2
CLBal	numeric 7 2
CRLeave	numeric 7 2
DBLeave	numeric 7 2
ENCLLeave	numeric 7 2
LeaveID	nvarchar 2 0
OPBal	numeric 7 2
PMonth	numeric 2 0
PYear	numeric 4 0
TotOverflow	numeric 7 2
UsedOverflow	numeric 7 2

- Select the **Destination** field from the drop down options to map with the source field. Destination field will always be fixed. It is dependent neither on Source table nor on Source field.

Destination Field

ACCRUAL-POLICY	NUMERIC	2	0
C-OFFHRS	NUMERIC	4	0
CREDIT-MODE	NUMERIC	1	0
DATE	DATETIME	8	0
DAYS	NUMERIC	6	2
ENCASHMENT-MOD	NUMERIC	1	0
ENCASHMENT-TYPE	NUMERIC	1	0
ENTRY-TYPE	NVARCHAR	1	0
LASTUPDATEDTIME	DATETIME	8	0
LEAVE-CODE	NVARCHAR	2	0
MONTH	NUMERIC	2	0
PERIOD	NVARCHAR	1	0
PRO-RATA	NUMERIC	1	0
REMARK	NVARCHAR	30	0
USERID	NVARCHAR	15	0
YEAR	NUMERIC	4	0

- Click on the **Add** button. The mapped fields will be visible in the bottom grid as shown.

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

Import

Source: MS SQL Server

Data: Leave Balance

Fields Mapping

Source Table: Mx_LeaveBal

Source Field: CFBal | numeric | 7 | 2

Destination Field: PRO-RATA | NUMERIC | 1 | 0

Add

MS SQL Field	Data Type	Length	Decima	Destination Field	Data Type	Length	Decima	Clear
CFBal	numeric	7	2	DAYS	NUMERIC	6	2	Clear
CFBal	numeric	7	2	ENCASHMENT-	NUMERIC	1	0	Clear
CFBal	numeric	7	2	MONTH	NUMERIC	2	0	Clear
CFBal	numeric	7	2	PRO-RATA	NUMERIC	1	0	Clear

Schedule

Edit Save Manual Transfer Cancel



The mapping between the following data types is allowed. Only a warning message is shown in case of mismatch in data types.

Source data type	Destination data type
Text(char, varchar, varchar2...)	Number (numeric, int, bigint, smallint, float, number, double, int32...)
Text	Datetime formats(depending on the date format configured for DB server. If format matches, the record will be accepted)
Number	Text
Date Time	Text

The mapping from Number and Date time to Date time and Number respectively is restricted.



Source field's data type must always match with the Destination field's data type. In case of mismatch, a warning is generated as shown below and mapping will not be done.

Source field does not match with Destination field

Import

Source: MS SQL Server

Data: Leave Balance

Fields Mapping

Source Table: Mx_LeaveBal

Source Field: CFBal | numeric | 7 | 2

Destination Field: DATE | DATETIME | 8 | 0

Add

MS SQL Field	Data Type	Length	Decima	Destination Field	Data Type	Length	Decima	Clear
CFBal	numeric	7	2	DAYS	NUMERIC	6	2	Clear
CFBal	numeric	7	2	ENCASHMENT	NUMERIC	1	0	Clear
CFBal	numeric	7	2	MONTH	NUMERIC	2	0	Clear
CFBal	numeric	7	2	PRO-RATA	NUMERIC	1	0	Clear
CFBal	numeric	7	2	YEAR	NUMERIC	4	0	Clear



In case of mismatch of lengths of data types of source field and destination field, a warning is generated but if you click on Yes, mapping will be done.

Fields Mapping

Source Table: Mx_AbsenteePolicyMst

Source Field: ABPLCID | numeric | 2 | 0

Destination Field: ALLOW-OFFLINE-PI | NUMERIC | 1 | 0

Field Mapping

Length of Field is not Matching. Do you still want to Continue ?

Yes No

MS SQL Field	Data Type	Length	Decima
ABPLCID	NUMERIC	2	0



In the case of selecting data as **User details**, the user needs to map the UserID, Name and BLNUPDATEFIELD/LASTUPDATEDTIME destination fields to fields in the source table.

In the case of selecting Data as **User-Wise Shift Assignment**, the user needs to map UserID, Shift-ID, StartDate and EndDate destination fields to fields in the source table.

In the case of selecting Data as **Leave Transaction**, the user needs to map UserID, StartDate, Leave-Code and LASTUPDATEDTIME destination fields to fields in the source table.

In the case of selecting Data as **Leave Balance**, the user needs to map UserID, Entry-Type, Days, Accrual-Policy, Leave-Code, Date, C-Offhrs and LASTUPDATEDTIME source fields to fields in the destination table.

The **Schedule** section enables the Admin user to schedule the data import process. After saving the data you can manually transfer the data.

The screenshot shows a web-based configuration interface for data import. At the top, under the 'Import' header, there are two dropdown menus: 'Source' set to 'MS SQL Server' and 'Data' set to 'User-Wise Shift Assignment'. Below these is a 'Fields Mapping' section with a downward arrow. The 'Schedule' section is expanded, showing various settings: 'Active' is checked, 'Schedule' is set to 'Monthly', 'Every' is '1' with the label 'Day Of the Month', 'Run Time (HH:MM)' is '09:00', 'Start Date' is '01/02/2018', 'Update Records' is 'Duration-Based', 'Duration Prior Current Date' is '7 (Days)', and 'Duration Post Current Date' is '7 (Days)'. At the bottom, 'Enable Alerts For' has checkboxes for 'Success' (checked) and 'Failure' (unchecked).

Check the **Active** box to enable the schedule.

Select the **Schedule** for data transfer as **Daily** or **Monthly**.

- On selection of **Monthly** option, user can select the day for data transfer process to run once in a month. By default, **Monthly** option would be selected.
- On selection of **Daily** option, you can run the schedule “once in a day” or “Interval based”. Enter the value in minutes or hours for interval based schedule.

Import

Source: MS SQL Server

Data: User-Wise Shift Assignment

Fields Mapping

Schedule

Active: ☒

Schedule: **Daily**

☒ Once In a Day ☐ Interval Based

Run Time (HH:MM): **09:00**

Start Date: **01/02/2018**

Update Records: **Duration-Based**

Duration Prior Current Date: **7** (Days)

Duration Post Current Date: **7** (Days)

Enable Alerts For: ☒ **Success** ☐ **Failure**

- Specify the **Run time** in HH:MM format when the import process is to be run.
- Enter the **Start date** from which import process is to be started.
- **Update Records:** You can select the option as **Duration- Based** or **Differential** based on which records is to be updated.

Duration-Based

- **Duration Prior Current Date (Days):** Enter the no. of days to be considered for import before current date. Suppose Current date or the process date is 20th, and duration prior is set as 5 so the import will run from 15th.
- **Duration Post Current Date (Days):** Enter the no. of days to be considered for import after current date. Suppose Current date or the process date is 20th, and duration post is set as 8 so the import will run upto 28th.

Differential

If Update Records is switched from Duration-Based to Differential, a pop-up (with close icon and OK button) will be displayed with the message: All Records will be imported for First Time. Thereafter, only updated ones will be imported.

- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.

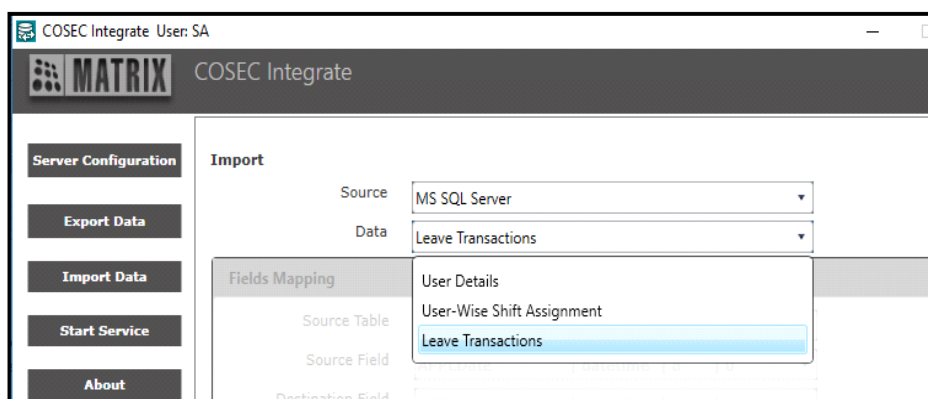


It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

Import Leave Transactions

When leave data is in Human Resource software and T&A calculations are done by COSEC; then it is must to import leave data from Human Resource software to COSEC to perform calculations of T&A management.

The leave transactions can be imported from MS SQL database, Oracle database or Excel file via Integrate. Select the **Data** as Leave Transactions.



Then map the source and destination fields

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

Import

Source: MS SQL Server

Data: Leave Transactions

Fields Mapping

Source Table: Mx_LeaveTrn

Source Field: APPLDate | datetime | 8 | 0

Destination Field: ACTION | NUMERIC | 1 | 0

Add

MS SQL Field	Data Type	Length	Decima	Destination Field	Data Type	Length	Decima	Clear
FormNo	numeric	10	0	TID	NUMERIC	10	0	Clear
FromDate	datetime	8	0	START-DATE	DATETIME	8	0	Clear
LeaveID	nvarchar	2	0	LEAVE-CODE	NVARCHAR	2	0	Clear
SNCNDate	datetime	8	0	LASTUPDATEDT	DATETIME	8	0	Clear
SNCNFlg	numeric	1	0	ACTION	NUMERIC	1	0	Clear
UserID	nvarchar	15	0	USERID	NVARCHAR	15	0	Clear

Schedule

Edit Save Manual Transfer Cancel

The fields USERID, START-DATE, LEAVE-CODE and LASTUPDATEDTIMESTAMP are mandatory for mapping. If TID is mapped; then ACTION is required to be mapped for importing based on TID.

After mapping, click on Save button.

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

Import

Source: MS SQL Server

Data: Leave Transactions

Fields Mapping

Schedule

Active ☒

Schedule: Daily

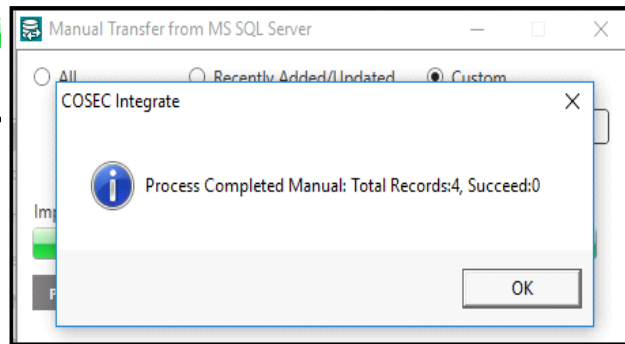
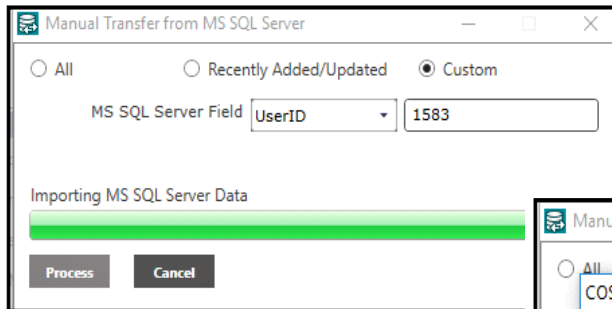
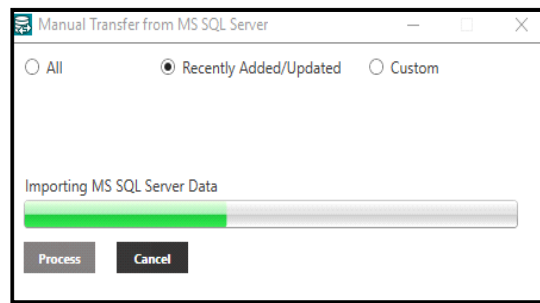
Run Time (HH:MM): 09:00


Start Date: 27/08/2018

Enable Alerts For: ☒ Success ☐ Failure

Edit Save Manual Transfer Cancel

The import can be scheduled or manual transfer can be done.



 *Client database should have a field containing primary key.*

Import Leave Balance

Import Leave Balance allows user to perform **Leave Encashment** as the 'Credit/Debit', 'C-OFF Encashment' and 'Overflow Management' of the leave records. It can be done through the Import as shown below.

The Import can be done through the sources; **MS SQL/Oracle, Excel, Progress Open Edge, Postgre, Customized SAP** and **My SQL**. Select the respective source, the Data as Leave balance and configure the rest parameters the same way as described in Import Leave Transaction.

Map the source and destination fields from Fields Mapping.

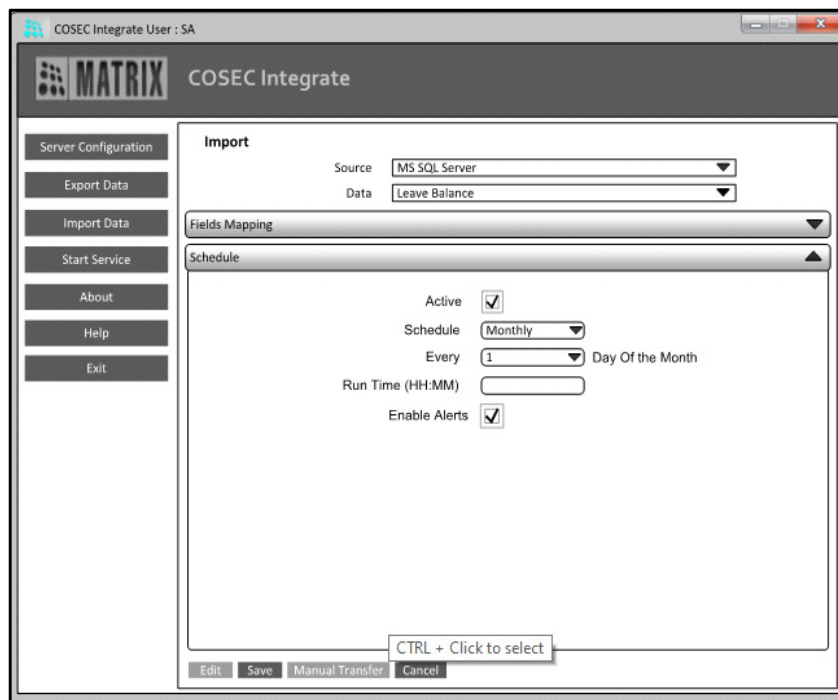
The screenshot shows the 'COSEC Integrate' application window. On the left is a sidebar with buttons: 'Server Configuration', 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'Import' and contains the following fields:

- Source:** A dropdown menu set to 'MS SQL Server'.
- Data:** A dropdown menu set to 'Leave Balance'.
- Fields Mapping:** A section with a dropdown arrow. It contains:
 - Source Table:** A dropdown menu set to 'Mx_LeaveCRDTm'.
 - Source Field:** A dropdown menu set to 'UserID' with data type 'nvarchar', length '15', and decimal '0'.
 - Destination Field:** A dropdown menu set to 'UserID' with data type 'nvarchar', length '15', and decimal '0'.
 - Add:** A button below the field mappings.
- MS SQL Field Table:** A table with columns: MS SQL Field, Data Type, Length, Decimal, Destination Field, Data Type, Length, Decimal, Clear. It is currently empty.
- Schedule:** A dropdown menu at the bottom.
- Buttons:** 'Edit', 'Save', 'Manual Transfer', and 'Cancel' at the very bottom.

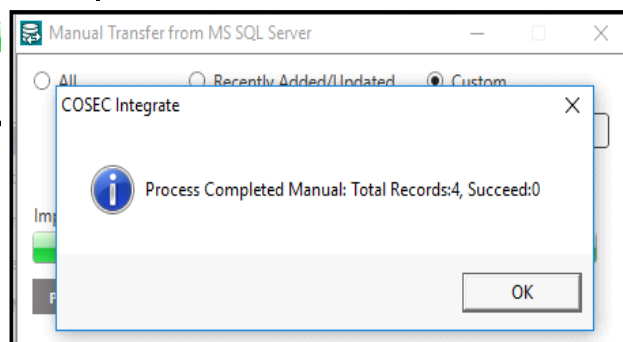
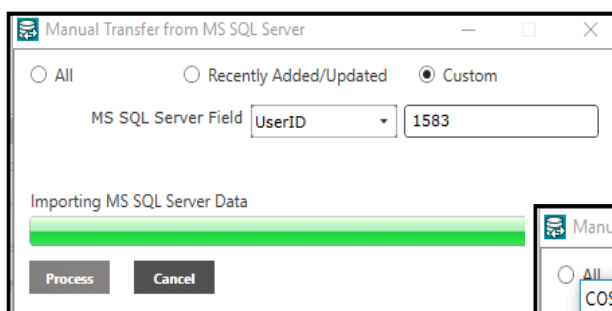
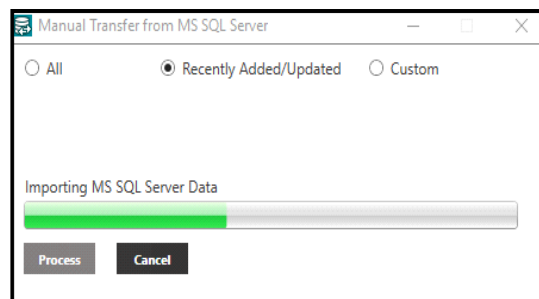
Map the source and destination fields from Fields Mapping.

The fields USERID, START-DATE, LEAVE-CODE and LASTUPDATEDTIMESTAMP are mandatory for mapping. If TID is mapped; then ACTION is required to be mapped for importing based on TID.

After mapping, click on Save button.



The import can be scheduled or manual transfer can be done.



The Import with the other sources are explained in further examples.

Import from Active Directory

The COSEC INTEGRATE application provides the functionality to import user data from the Active Directory service of Windows.

The application allows the administrator to map the data fields of the COSEC application database to the data fields of the active directory.

Now user can click on the **Server Configuration** button to start the configuring process. The following page appears. Select the **Import from Active Directory** option in the **Integration Mode** field.

The screenshot shows the 'COSEC Integrate' application window. On the left is a sidebar with buttons: 'Server Configuration' (highlighted), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area has a title bar 'COSEC Integrate' and a dropdown menu 'Integration Mode' set to 'Import From Active Directory'. Below this are two panels: 'COSEC Web Server' and 'Active Directory'. The 'COSEC Web Server' panel contains fields for 'Web URL' (http://localhost/COSEC/api.svc/v2), 'User Name' (sa), and 'Password' (masked with dots), with a 'Test Connection' button below. The 'Active Directory' panel contains fields for 'Server' (192.168.103.27), 'Port' (389), 'Domain' (DC=matrix,DC=cosectest2016), 'User Name' (anil), and 'Password' (masked with dots), with an 'Enable SSL' checkbox and a 'Test Connection' button. At the bottom of the main area are buttons for 'Edit', 'Save', 'Cancel', and 'Delete'.

In the **COSEC Web Server** section:

- Specify the web url of the api service of the COSEC WEB application as shown.
- Enter the User Name and Password of the sa user as set in the COSEC WEB application.

In the **Active Directory** section:

- Specify the IP address or the network name of the Domain Controller.
- **Port:** Enter the port no. if configured.
- **Domain Name:** Specify the domain name as shown. For e.g. if the domain name is matrix.com the domain name is specified as: **dc=matrix,dc=com**.
- **User Name:** Specify the username having administrator rights in this field. e.g. **matrix\administrator**.
- **Password:** Enter the password of the administrator as per the site settings.
- **Enable SSL:** To establish secured connection and protecting Data, click on check-box given next to **Enable SSL**. It is compulsory to enable this check-box.

The **Test Connection** button is provided to test the connections with the web server as well as the Active Directory service.

Click on **Save** once done.

Active Directory Import Configuration

This option enables the Admin user to map the fields from the Active Directory service to the appropriate fields in the COSEC database. The application will list all the fields in the COSEC database which are relevant to the User Configuration. The administrator needs to select the relevant fields in the Active Directory and then map the same to the relevant fields of the COSEC database.

Click on the **Import Data** button. The following page appears.

Import

Source: Active Directory

Data: User Details

Fields Mapping

Source Field: uidNumber

Destination Field: NAME | VARCHAR | 45 | 0

Add

Active Directory	Data Type	Length	Decima	Destination Field	Data Type	Length	Decima	Clear
attributeDisplay				DSG	NUMERIC	6	0	Clear
frSPriamryMen				FULL-NAME	NVARCHAR	200	0	Clear
objectSid				DEVICE-GROUP	NUMERIC	5	0	Clear
telephoneNum1				OFFICIAL-CELL	VARCHAR	32	0	Clear
uid				ID	VARCHAR	15	0	Clear
uidNumber				NAME	VARCHAR	45	0	Clear

Schedule

Edit Save Manual Transfer Cancel

- Select **Active Directory** from the **Source** drop down list.
- Click on **Edit**.
- In the **Fields Mapping** section, select the **Source Field** and **Destination Field** from the respective drop down lists.

Click on the **Add** button. The mapped fields will be visible in the bottom grid as shown. The schedule section enables the administrator to set the frequency at which the COSEC service will check the active directory for updates.

Schedule

Active ☒

Update Interval: 5 Minutes

Enable Alerts For: ☒ Success ☐ Failure

Filter Records: Custom

Apply Filter As per: department dept11

- Check the **Active** box to enable the schedule.

- Specify the **Update Interval** in seconds, minutes or hours to define the frequency at which the application will update the destination COSEC database.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

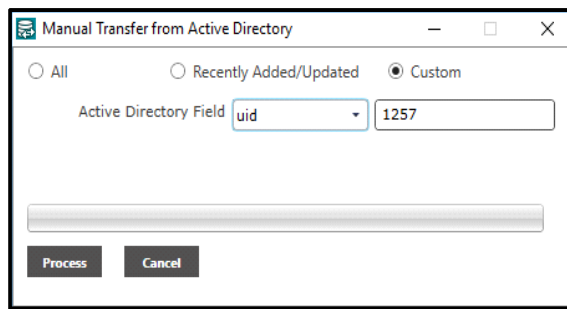
- **Filter Records:** You can filter the records that are to be imported at scheduled runtime by selecting All or Custom option.
 - If **Custom** option is selected then select the option for “**Apply Filter As Per**” and enter the respective value in the text box.

Click on **Save** once done.

Manual Transfer

The manual transfer option provides the admin user the flexibility to import user data from the active directory database as and when required. In order to access this functionality click on the **Stop service** button to stop the COSEC INTEGRATE service.

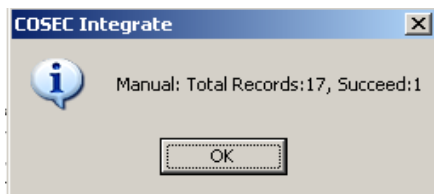
Click on the **Active Directory** button followed by the **Manual Transfer** button. The following window appears.



Select from one of the following options.

- **All** - Imports all users from the active directory database.
- **Recently Added/Updated** - Imports only those users whose records have been updated after the last import.
- **Custom** - Imports users as per the defined filter.

Click on the **Process** button. The application will import data of the users as per the specified filter and displays the status of the import process as shown.



Click on **OK** to close the window.

Importing Data from a Customized SAP

The application allows the user to import user data from a customized external MS SQL or Oracle database table.



Integrate supports Import from Oracle upto version Oracle 23AI and Import from MS SQL upto version MS SQL 16.0.1000.6.

The following figure depicts a sample of the source table structure.

	Column Name	Data Type	Allow Nulls
▶	EMPNO	varchar(8)	<input type="checkbox"/>
	ENAME	varchar(40)	<input checked="" type="checkbox"/>
	DOB	datetime	<input checked="" type="checkbox"/>
	DOJ	datetime	<input checked="" type="checkbox"/>
	DOR	datetime	<input checked="" type="checkbox"/>
	BGROUP	varchar(6)	<input checked="" type="checkbox"/>
	GENDER	varchar(1)	<input checked="" type="checkbox"/>
	ADDLOC	varchar(60)	<input checked="" type="checkbox"/>
	ADDPER	varchar(60)	<input checked="" type="checkbox"/>
	CITY	varchar(40)	<input checked="" type="checkbox"/>
	PINCODE	varchar(10)	<input checked="" type="checkbox"/>
	STATE	varchar(20)	<input checked="" type="checkbox"/>
	COUNTRY	varchar(3)	<input checked="" type="checkbox"/>
	DIDNO	varchar(30)	<input checked="" type="checkbox"/>
	MOBNO	varchar(30)	<input checked="" type="checkbox"/>
	EXTNO	varchar(30)	<input checked="" type="checkbox"/>
	MAILID	varchar(100)	<input checked="" type="checkbox"/>
	DEPT	varchar(4)	<input checked="" type="checkbox"/>
	COMPCODE	varchar(4)	<input checked="" type="checkbox"/>
	BRNLOC	varchar(4)	<input checked="" type="checkbox"/>
	DESIG	varchar(60)	<input checked="" type="checkbox"/>
	GRADE	varchar(2)	<input checked="" type="checkbox"/>
	CATEGORY	varchar(1)	<input checked="" type="checkbox"/>
	P_FLAG	numeric(1, 0)	<input checked="" type="checkbox"/>
	insert_dt	datetime	<input checked="" type="checkbox"/>
	process_dt	datetime	<input checked="" type="checkbox"/>
	Module	char(1)	<input checked="" type="checkbox"/>

The user can map the required fields as explained earlier. In this case too, the following destination fields need to be compulsorily mapped with appropriate fields of the source table as shown.

- id
- name
- BLNUPDATEFIELD

The import data options have the following **Schedule** options.

The screenshot shows a configuration window titled 'Import'. It has two dropdown menus at the top: 'Source' set to 'Customized SQL Server' and 'Data' set to 'User Details'. Below these are two expandable sections. The 'Fields Mapping' section is collapsed. The 'Schedule' section is expanded, showing an 'Active' checkbox, an 'Update Interval' field with a dropdown set to 'Seconds', and two checkboxes under 'Enable Alerts For': 'Success' and 'Failure'.

- Check the Active box to enable the schedule.
- Specify the **Update Interval** in seconds, minutes or hours to define the frequency at which the application will import the data from the source table.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

Click on **Save** once done.

Import Events

The COSEC INTEGRATE application provides the functionality to import event data from 3rd party database i.e. MS SQL and Oracle as well as from Excel.



Integrate supports Import from Oracle from version Oracle 10g to Oracle 23AI.

Integrate supports Import from MS SQL from version SQL Server 2005 to SQL Server 2022.

SQL Server 2005 and SQL Server 2008 R2:

- *for installation you need Windows 7 or below versions.*
- *to establish remote connections in these versions from the PC in which Integrate is installed, make sure you have enabled TLS 1.0 and 1.1 (that is, Best Practices settings).*

Now user can click on the **Server Configuration** button to start the configuring process. The following page appears. Select the **Import Events** option in the **Integration Mode** field.

In the **COSEC Web Server** section:

- Specify the web URL of the api service of the COSEC WEB application as shown.
- Enter the User Name and Password of the SA user as set in the COSEC WEB application.

In the **Source Details** section:

- Select the **Import From** option as SQL SERVER, ORACLE SERVER or EXCEL.
- **Server:** Enter the database server name in the following format - **Database server name\Instance Name** e.g. dbserver\\sqlexpress.
- **Database Name:** Specify the database name of the source database as per the site settings.

- **User Name:** Specify the database administrator ID in this field.
- **Password:** Enter the password of the Database administrator as per the site settings.

The **Test Connection** button is provided to test the connections with the web server as well as the MS SQL or Oracle Server database.

Click on **Save** once done.

Now click on **Import Data** button. The following page appears. This option enables the Admin user to select the external source database from where the data is to be imported in the destination COSEC table.

Import
Source

Import Events SQL Server

Fields Mapping

Source Table

Mx_AbsenteePolicyMst

Source Field

ABPLCID | numeric | 2 | 0

Destination Field

USERID | VARCHAR | 10 | 0

Add

Events Sql Field	Data Type	Length	Decimal	Destination Field	Data Type	Length	Decimal	Clear

Schedule

Active
☐

Update Interval

Seconds

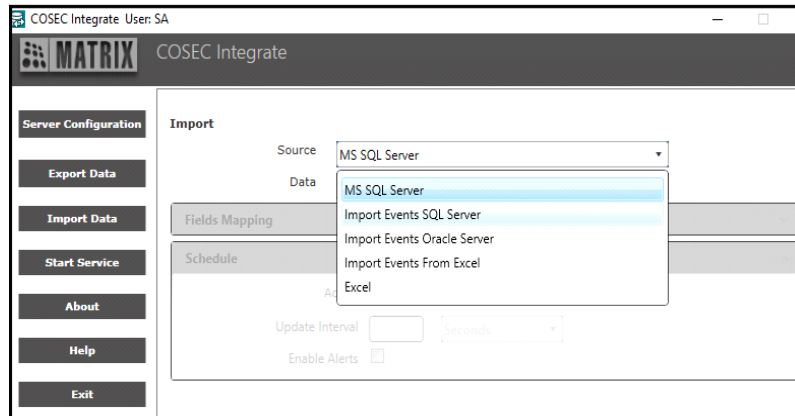
Edit

Save

Manual Transfer

Cancel

Select the source table from the drop down list. The system will get the details of the fields from the source table and display the same in the **Source Field** parameter.



Now the Admin user can start the mapping of the fields from the source database to that of the destination database as shown. Select the appropriate source and the destination fields and click on the **Add** button.

The mapped fields will be visible in the bottom grid as shown. The following destination fields need to be compulsorily mapped with appropriate fields of the source table as shown.

- userid
- event-datetime
- BLNUPDATEFIELD

Click on **Save** button to commit the changes.

The **Schedule** section enables the administrator to set the frequency at which the COSEC service will check the active directory for updates.

- Check the **Active** box to enable the schedule.
- Specify the **Update Interval** in seconds, Minutes or Hours to define the frequency at which the application will update the destination COSEC database.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

Click on **Save** once done.

Import Events from Excel

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

COSEC Web Server Connection Tested Successfully

Integration Mode: Import Events

COSEC Web Server

Web URL: http://localhost/COSEC/api.svc/v2

User Name: sa

Password:

Test Connection

Source Details

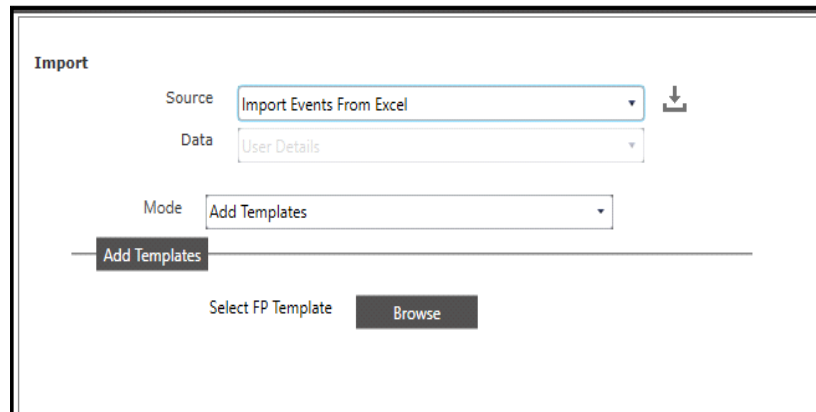
Import From: Excel

Edit Save Cancel Delete


- Select the **Import From** option as Excel.
- Click Test connection button to test the connection with COSEC web server.
- Then click **Save** button.

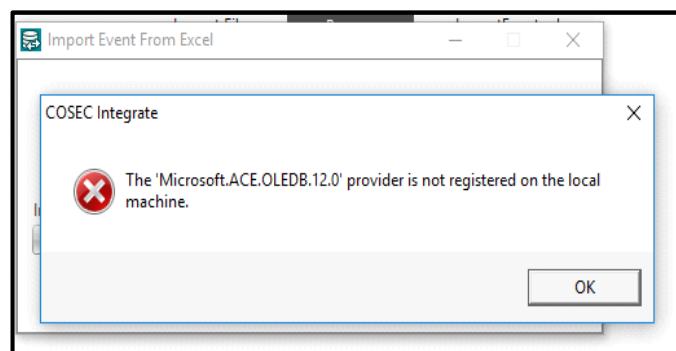
Import Data

In Import Data page, select the Source as Import Events from Excel.

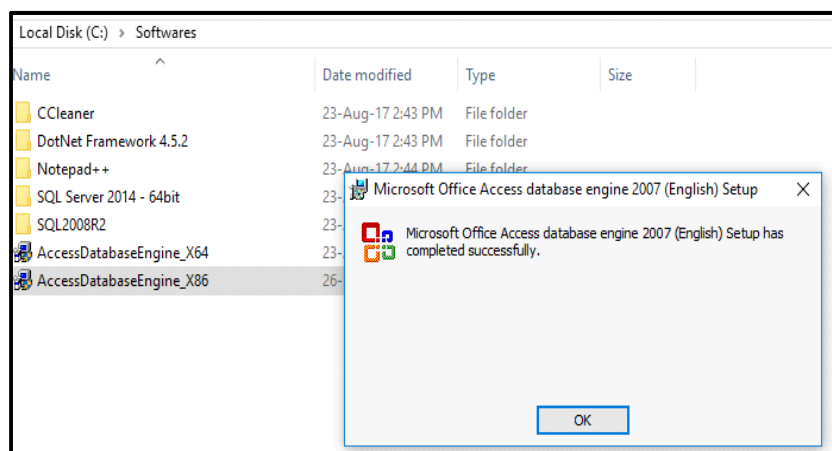


The screenshot shows the 'Import' section of a software interface. It contains three dropdown menus: 'Source' set to 'Import Events From Excel', 'Data' set to 'User Details', and 'Mode' set to 'Add Templates'. Below these is a button labeled 'Add Templates'. At the bottom, there is a label 'Select FP Template' followed by a 'Browse' button.

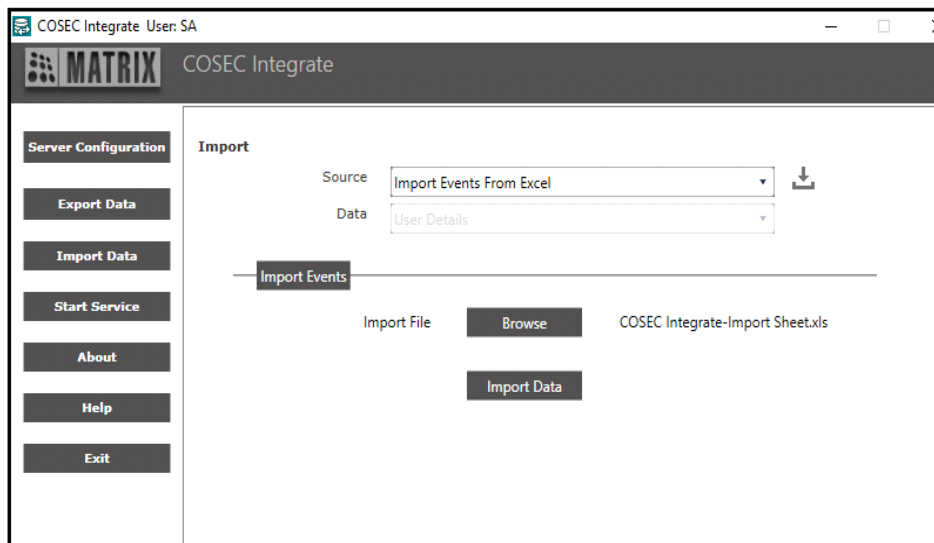
You can click on  to import the sample Import Events file. Then save the sample file at desired location. Click on **Browse** button and select the excel file for importing events. You can import excel file of max 15 MB. For importing excel file, you must have drivers to import.



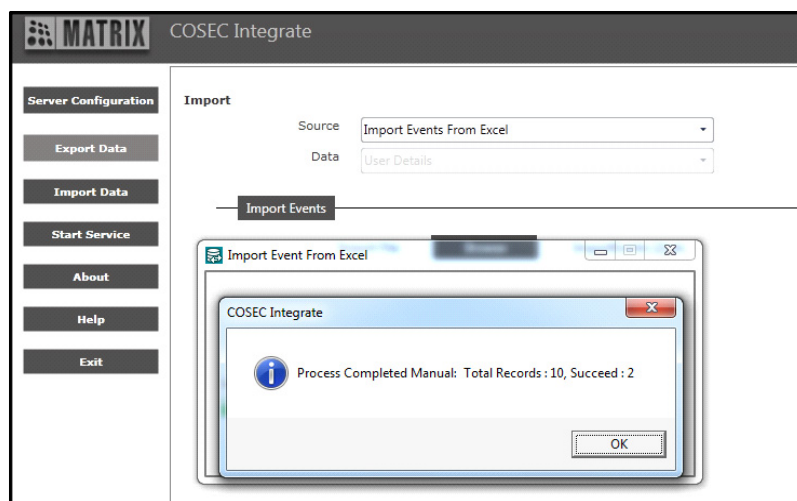
You must install Access Database Engine compatible to your computer as shown below.



Now the Excel file is selected as shown below.



Then click on **Import Data** button. The import process is shown below.



You can view the imported records in User events as shown below.

The screenshot shows the 'User Events' window. At the top, there are date filters (01/01/2018 to 26/02/2018), a 'Filter By' dropdown set to 'All', and 'Group/User' filters for 'ID' and 'Name'. A 'View' button is below these filters. Below the filters, there are expandable sections for 'Attendance Events (2)', 'Access Control Events (0)', and 'Visitor Events (0)'. The 'Attendance Events (2)' section is expanded, showing a table with the following data:

User ID	User Name	Date-Time	Device Name	I/O	Access	Source	Source Details	Location Details	View Image
iu1	user1	04/01/2018 19:00		Entry	Allowed	Others			
iu2	user2	04/01/2018 19:00		Entry	Allowed	Others			

Manual Transfer

The manual transfer option provides the Admin user the flexibility to import events from the source database as and when required. In order to access this functionality click on the **Stop service** button to stop the COSEC INTEGRATE service.

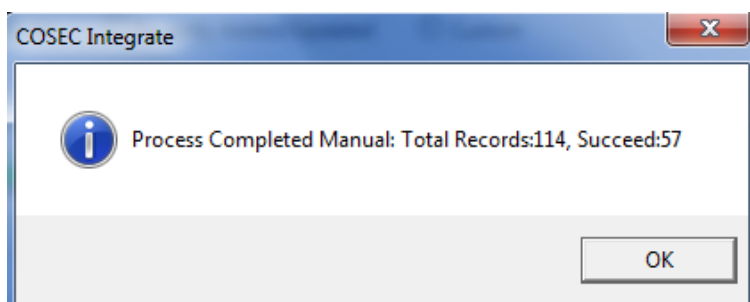
Click on the **Import Data** button followed by the **Manual Transfer** button. The following window appears.

The screenshot shows the 'Manual Transfer from SQL Server Events' dialog box. It has three radio buttons: 'All', 'Recently Added/Updated', and 'Custom'. The 'Custom' option is selected. Below the radio buttons, there is a label 'Events SQL Field' followed by a dropdown menu showing 'UserID' and an empty text input field. At the bottom, there are 'Process' and 'Cancel' buttons.

Select from one of the following options.

- **All** - Imports all events from the source database.
- **Recently Added/Updated** - Imports only those events whose records have been updated after the last import.
- **Custom** - Imports events as per the defined filter.

Click on the **Process** button. The application will import data of the users as per the specified filter and displays the status of the import process as shown.



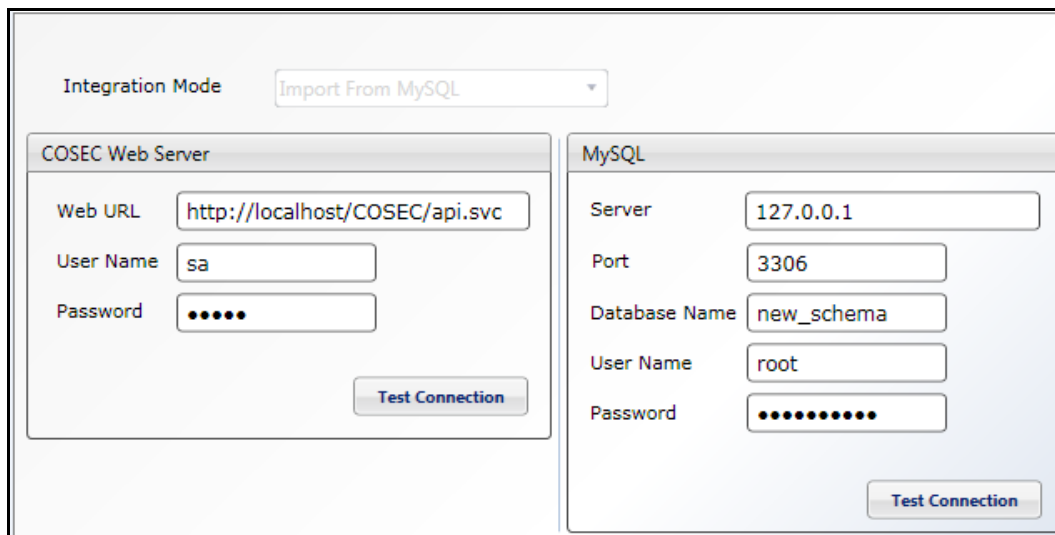
Click on **OK** to close the window.

Import from My SQL

Select the **Import from My SQL Server** option in the **Integration Mode** field. Click on the **Edit** button.



Integrate supports Import from MySQL from version MySQL 8.0.27 to MySQL 8.3.0.

A screenshot of a web application configuration interface. At the top, there is a dropdown menu labeled 'Integration Mode' with 'Import From MySQL' selected. Below this, there are two main sections: 'COSEC Web Server' and 'MySQL'. The 'COSEC Web Server' section contains three input fields: 'Web URL' with the value 'http://localhost/COSEC/api.svc', 'User Name' with the value 'sa', and 'Password' with masked characters. A 'Test Connection' button is located at the bottom right of this section. The 'MySQL' section contains five input fields: 'Server' with the value '127.0.0.1', 'Port' with the value '3306', 'Database Name' with the value 'new_schema', 'User Name' with the value 'root', and 'Password' with masked characters. A 'Test Connection' button is located at the bottom right of this section.

In the **COSEC Web Server** section:

- Specify the web URL of the api service of the COSEC WEB application as shown.
- Enter the User Name and Password of the SA user as set in the COSEC WEB application.

In the **Source Database Server** section:

- The **Database Type** will be SQL SERVER.
- **Server**: Enter the database server name in the following format - **Database server name\Instance Name** e.g. dbserver\sqlexpress.
- **Database Name**: Specify the database name of the source SQL database as per the site settings.
- **User Name**: Specify the database administrator ID in this field.
- **Password**: Enter the password of the Database administrator as per the site settings.

The **Test Connection** button is provided to test the connections with the web server as well as MS SQL. Click on **Save** once done.

Import Data Configuration

This option enables the Admin user to map the fields from the external source database table to fields in the destination COSEC User table. Click on the **Import Data** button. The following page appears.

Import
Source MySQL Server

Fields Mapping
Source Table usermaster
Source Field id | VarChar | 10 | 0
Destination Field id | VARCHAR | 10 | 0
Add

MySQL Field	Data Type	Length	Decimal	Destination Field	Data Type	Length	Decimal	Clear
pin	VarChar	6	0	pin	VARCHAR	6	0	Clear
policy	String	4	0	policy	CHAR	4	0	Clear
qualification	VarChar	50	0	qualification	VARCHAR	50	0	Clear
reasonforleaving	VarChar	15	0	reason-for-leavir	VARCHAR	15	0	Clear
weight	Int32	5	0	weight	NUMERIC	5	1	Clear

Select the source table from the pull down list. The system will get the details of the fields from the source table and display the same in the **Source Field** parameter.

Now the Admin user can start the mapping of the fields from the source database to that of the destination database as shown. Select the appropriate source and the destination fields and click on the **Add** button.

Fields Mapping
Source Table usermaster
Source Field id | VarChar | 10 | 0
Destination Field id | VARCHAR | 10 | 0
Add

MySQL Field	Data Type	Length	Decimal	Destination Field	Data Type	Length	Decimal	Clear
pin	VarChar	6	0	pin	VARCHAR	6	0	Clear
policy	String	4	0	policy	CHAR	4	0	Clear
qualification	VarChar	50	0	qualification	VARCHAR	50	0	Clear
reasonforleaving	VarChar	15	0	reason-for-leavir	VARCHAR	15	0	Clear
weight	Int32	5	0	weight	NUMERIC	5	1	Clear

The mapped fields will be visible in the bottom grid as shown. The following destination fields need to be compulsorily mapped with appropriate fields of the source table as shown.

- id
- name
- BLNUPDATEFIELD

This is common to all the import options except the Active directory option.

Import from Progress OpenEdge

Select the **Import from Progress OpenEdge** option in the **Integration Mode** field. Click on the **Edit** button.



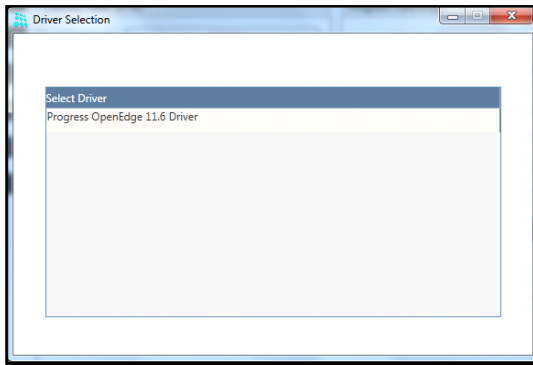
Integrate supports Import from Progress OpenEdge version OpenEdge 12.8.

In the **COSEC Web Server** section:

- Specify the web URL of the api service of the COSEC WEB application as shown.
- Enter the User Name and Password of the SA user as set in the COSEC WEB application.

In the **Progress OpenEdge** section:

- **Server:** Enter the server name with which the Progress OpenEdge database is started.
- **Driver Name:** Select the Progress OpenEdge driver from the picklist. It is the software driver which will appear in picklist, once the database is installed.



- **Port:** Enter the port number at which the Progress OpenEdge database is running. It is the port number (eg: 5003) entered in command prompt while starting the database as shown below.
- **Database Name:** Enter the database name with which Progress OpenEdge database is started. It is case sensitive. Thus if Database is started with name cosecDB as shown below then enter the name as "cosecDB".

```
proenu>proserve -db C:\OpenEdge\WRK\cosecDB -H patricpillai -S 5003
OpenEdge Release 11.6 as of Fri Oct 16 19:01:51 EDT 2015
11:31:09 BROKER      This broker will terminate when session ends. <5405>
11:31:09 BROKER      The startup of this database requires 17Mb of shared memory.
Maximum segment size is 128Mb.
11:31:09 BROKER      0: Multi-user session begin. <333>
11:31:09 BROKER      0: Before Image Log Initialization at block 0 offset 6031. <15321>
11:31:09 BROKER      0: Login by admin on CON:. <452>
11:31:09 BROKER      0: This server is licensed for local logins only. <4393>
11:31:09 BROKER      0: Started for 5003 using TCP IPV4 address 127.0.0.1, pid 10172. <5644>
```

- **User Name:** Specify the user name as entered while creating the database.
- **Password:** Specify the password as entered while creating the database. Eg: User name is cosec and Password is cosec.

The **Test Connection** button is provided to test the connections with the web server as well as the Progress OpenEdge database.

COSEC Integrate User: SA

MATRIX COSEC Integrate

Server Configuration

Export Data

Import Data

Start Service

About

Help

Exit

Progress OpenEdge Connection Tested Successfully

Integration Mode: Import From Progress OpenEdge

COSEC Web Server

Web URL:

User Name:

Password:

Test Connection

Progress OpenEdge

Server:

Driver Name:

Port:

Database Name:

User Name:

Password:

Test Connection

Edit Save Cancel Delete

Click on **Save** button to save the server configuration.

Import Data Configuration

This option enables the Admin user to map the fields from the external source database table to fields in the destination COSEC User table. Click on the **Import Data** button. The following page appears.

The screenshot shows the 'COSEC Integrate' application window. On the left is a sidebar with buttons: 'Server Configuration', 'Export Data', 'Import Data' (highlighted), 'Start Service', 'About', 'Help', and 'Exit'. The main area is titled 'Import' and contains a 'Source' dropdown set to 'Progress OpenEdge'. Below this is the 'Fields Mapping' section with 'Source Table' set to 'Benefits', 'Source Field' set to 'DependentCare' (integer, 4, 0), and 'Destination Field' set to 'ABSENTEE-POLICY' (NUMERIC, 2, 0). An 'Add' button is below the mapping fields. At the bottom is a 'Schedule' section with an 'Active' checkbox and an 'Update Interval' field set to 'Seconds'. At the very bottom are buttons for 'Edit', 'Save', 'Manual Transfer', and 'Cancel'.

Select the Source and click on the **Edit** button at the bottom of the page.

Select the **Source Table** from the drop down list. The system will get the details of the fields from the source table and display the same in the **Source Field** parameter.

The screenshot shows the 'Fields Mapping' dialog box. It has 'Source Table' set to 'Employee' and 'Source Field' set to 'Address' (varchar, 70, 0). The 'Destination Field' section shows a list of fields from the 'Employee' table: Address, Address2, Birthdate, City, DeptCode, EmpNum, FirstName, HomePhone, LastName, Position, PostalCode, and SickDaysLeft. Each field is listed with its data type and length. The 'Address' field is highlighted. To the right of the list are buttons for 'Decimal' and 'Clear'.

Select the appropriate **destination field** and click on the **Add** button. The mapped fields will be visible in the bottom grid as shown.

Fields Mapping

Source Table: Employee

Source Field: Position | varchar | 40 | 0

Destination Field: NAME | VARCHAR | 45 | 0

Add

Progress	OpenEdc	Data Type	Length	Decimal	Destination Field	Data Type	Length	Decimal	Clear
		varchar	30	0	ESI-NO	VARCHAR	30	0	Clear
		varchar	40	0	NAME	VARCHAR	45	0	Clear



The following destination fields need to be compulsorily mapped with appropriate fields of the source table as shown.

- *id*
- *name*
- *BLNUPDATEFIELD*

This is common to all the import options except the Active directory option.

Schedule

Schedule

Active ☐

Update Interval: Seconds

Enable Alerts For: ☐ Success ☐ Failure

- Check the **Active** box to enable the schedule.
- Specify the **Update Interval** in seconds, minutes or hours to define the frequency at which the application will update the destination database.
- **Enable Alert For:** When scheduled process gets completed then it will send an Alert to the configured COSEC Server. The Alert can be sent for both Successful as well as Failed transfers.

Select the checkboxes as per your requirement:

Select **Success** checkbox to send an alert mentioning the details of successfully transferred records to the configured COSEC Server.

Select **Failure** checkbox to send an alert mentioning the details of failure in transferring records to the configured COSEC Server.

If you require Alerts for both the above events, select both the check boxes.

In case of partial data transfer i.e. if both the above checkboxes are selected then the connection status will be considered as Failure and Reason for Failure will be displayed in the Alert.

Example: There are in total 100 records which are to be transferred.

Now, out of 100 records, only 60 records are transferred Successfully and the remaining 40 records have Failed. Such data transfers are known as partial data transfers.

So here the connection status will be Failure and an alert will be sent to the configured COSEC Server along with the reason for failed data transfer.



It is to be supported for all integrate modes defined in COSEC Integrate where enable alerts provision is present i.e. for all the integration modes except for Custom Export-FP Template & Export FP Template to File.

Import from Excel

The COSEC INTEGRATE application provides the functionality to import leave transaction data from Excel.

Now user can click on the **Server Configuration** button to start the configuring process. The following page appears. Select the **Import From Excel** option in the **Integration Mode** field.

The screenshot shows the COSEC Integrate application window. The title bar reads "COSEC Integrate User: SA". The main header features the "MATRIX" logo and the text "COSEC Integrate". A green banner at the top of the main content area says "Saved Successfully". On the left, a vertical sidebar contains buttons for "Server Configuration", "Export Data", "Import Data", "Start Service", "About", "Help", and "Exit". The "Server Configuration" button is highlighted. The main area is divided into two panels. The "COSEC Web Server" panel on the left contains fields for "Web URL" (with the value "http://localhost/COSEC/api.svc/v2"), "User Name" (with the value "SA"), and "Password" (with masked characters "*****"). Below these fields is a "Test Connection" button. The "Source Details" panel on the right contains an "Import From" dropdown menu with "Excel" selected. At the bottom of the main area are four buttons: "Edit", "Save", "Cancel", and "Delete".

In the **COSEC Web Server** section:

- Specify the web URL of the api service of the COSEC WEB application as shown.
- Enter the User Name and Password of the SA user as set in the COSEC WEB application.

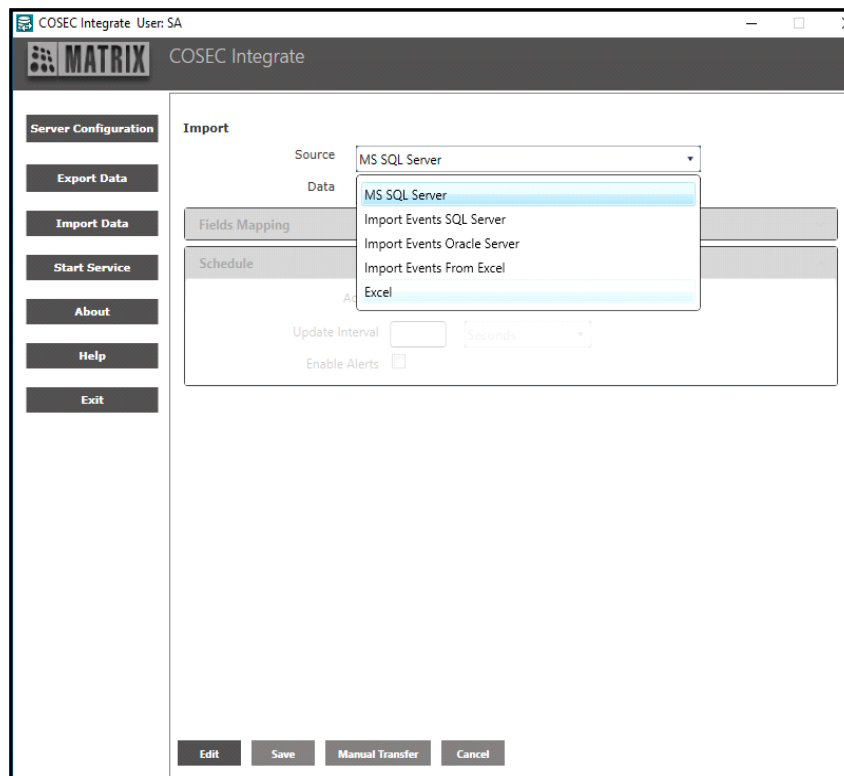
In the **Source Details** section:

- Select the **Import From** option as Excel.

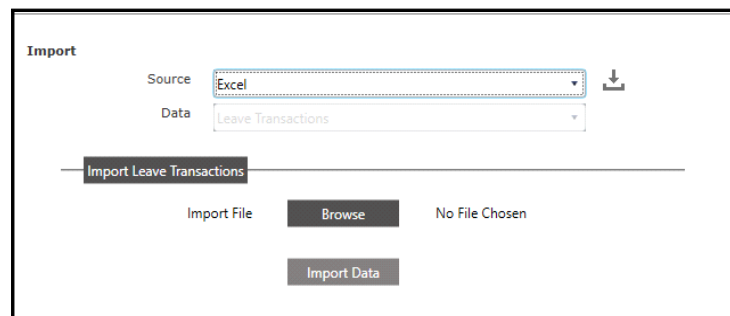
The **Test Connection** button is provided to test the connections with the web server.


Click on **Save** once done.

Now click on **Import Data** button. The following page appears. This option enables the admin user to select the external source database from where the data is to be imported in the destination COSEC table.

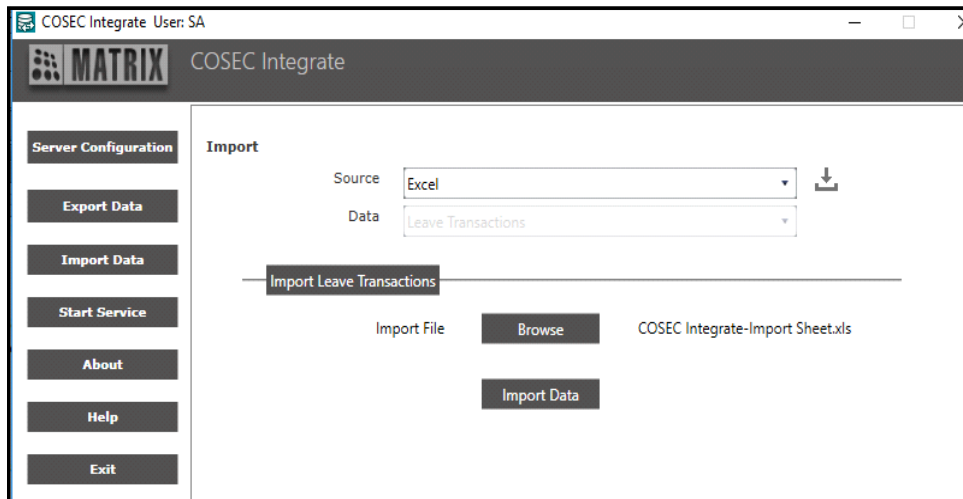


Select the source as **Excel**. The Data field shows the Leave Transaction.



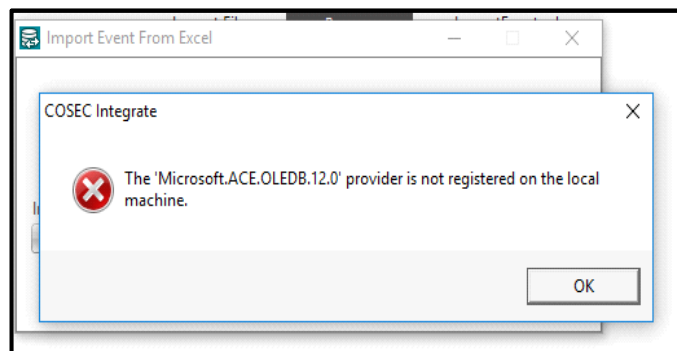
You can click on  to import the sample file for leave transaction. Then save the sample file at desired location. The leave records can be entered in the sample file.

Then click on **Browse** button to browse the file from where leave transactions are to be imported. Only .xls and .xlsx file of maximum size 15 MB is allowed for import.

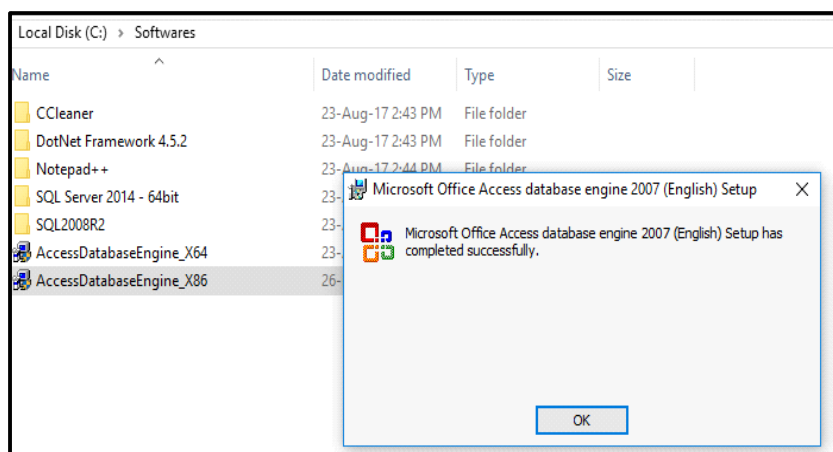


Then click on **Import Data**. The leave transaction data will be imported from the selected Excel file to the configured web server's database.

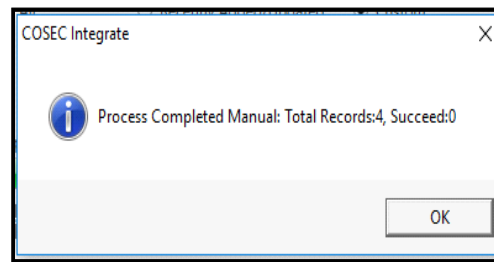
For importing excel file, you must have drivers to import.



You must install Access Database Engine compatible to your computer as shown below.



Then click on **Import Data** button. The import process is shown below.



Integrate Alert

When the Integrate scheduled process gets completed, an API will be triggered to the configured COSEC server.

An Alert would be generated for the same and sent to those users as SMS or Email, for whom alert message is configured in Alert Message Configuration as shown below.

User ID	Name	SMS	Email
101	Khushbu	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



The Contact number and Email ID on which the alert is to be sent; must be specified in User Configuration.

An alert log with error/status message would be generated and displayed in Admin> Views/Logs > Alert View.

E-mail ID	Message	Date Time	Error/Status
sheetal.raval@matrixrd.org	Chirag has applied Tour...	01/03/2018 18:22:00	
sheetal.raval@matrixrd.org	Chirag has applied Tour...	01/03/2018 18:18:51	
utsav.jain@matrixrd.org	Template_ATDEvents - Export To MS SQL Server scheduled ...	01/03/2018 15:52:01	
sheetal.raval@matrixrd.org	Template_ATDEvents - Export To MS SQL Server scheduled ...	01/03/2018 15:52:01	
aditi.gupta@matrixrd.org	Template_ATDEvents - Export To MS SQL Server scheduled ...	01/03/2018 15:52:01	

Consider a scenario, with configurations: **Include Previously Failed** is enabled and **Retry for failed records** =3, then count will be shown in Alert Message Configuration as displayed in below table.

Export

Database:

Source Data Template:

Table-Field Mapping

Schedule

Active: ☒

Enable Filter: ☒

Include Previously Failed: ☒

Retry For Failed Records:

☒ Interval Based ☐ Once a Day

Update Interval:

Run Time (HH:MM):

Start Date:

Retry Count:

Retry Interval:

Enable Alerts: ☒

Process number	Currently Scheduled Records	Successfully Transferred	Previously Failed Records	Successfully Transferred (from previously Failed Records)	To be displayed in Alert Message
1st Scheduled process	100	70	0	0	Scheduled Success =100 70
2nd Scheduled process	50	20	30 (1st scheduler)	10 (1st scheduler)	Scheduled Success =50 20
3rd Scheduled Process	100	90	20(1st scheduler) 30(2nd scheduler) Total=50	5(1st scheduler) 15 (2nd scheduler) Total=20	Scheduled Success =100 90 Previously Failed Success = 50 20
4th scheduled Process	50	50	15(2nd scheduler) 10(3rd scheduler) Total=25	10(2nd scheduler) 5 (3rd scheduler) Total=15	Scheduled Success =50 50 Previously Failed Success = 25 15



If the Integrate version and COSEC Server version are different then no alert would be sent to Server and assigned users even though Alert is configured.

BACnet Server Configuration

BACnet (Building Automation and Control Network) is an industry-standard protocol that is specifically used in Building Automation Systems. BACnet provides a standard framework for communication, management, monitoring and control of various automation functions specific to buildings, such as Lighting, HVAC, Fire Safety, Access Control and Energy Management Systems. BACnet supports multiple communication protocols, including Ethernet, TCP/IP, and RS-485, allowing for the integration of devices from different manufacturers and technologies.

Various Building Management Systems (BMS) rely on BACnet to communicate with each other for the exchange of data and to control devices and automation systems within a building.

Integration of BACnet with COSEC enhances its capability to integrate with 3rd party Building Management Systems. With this integration, COSEC Devices and their Events can be used to control various automation functions.

The COSEC Devices and their Event data will be sent to various 3rd party Building Management Systems (BACnet clients) through COSEC Integrate. Configuration of BACnet Server in COSEC Integrate will enable it to communicate with COSEC Server and fetch the desired data which in-turn will be shared with BACnet clients.

To integrate BACnet with COSEC, you need to:

- Configure the BACnet Server in COSEC Integrate. Once configured, these parameters will appear in Admin Module > System Configuration > BACnet Configuration > BACnet Server Configuration in COSEC Web.
- Configure the BACnet Server parameters in COSEC Web. For details, refer to Admin Module > System Configuration > BACnet Configuration > BACnet Server Configuration in the User Guide.
- Configure the BACnet Client List parameters. For details, refer to Admin Module > System Configuration > BACnet Configuration > BACnet Client List Configuration in the User Guide.

BACnet Server Configuration

Click **Server Configuration**. The following page appears.

The screenshot shows the COSEC Integrate application window with the title bar 'COSEC Integrate User: SA'. The main interface has a dark header with the 'MATRIX' logo and 'COSEC Integrate' text. On the left is a sidebar with buttons: 'Server Configuration' (highlighted), 'Export Data', 'Import Data', 'Start Service', 'About', 'Help', and 'Exit'. The main area is divided into two panels. The left panel, titled 'COSEC Web Server', contains fields for 'Integration Mode' (set to 'BACnet Server'), 'Web URL' (http://localhost/COSEC/api.svc/), 'User Name' (sa), and 'Password' (masked with dots), along with a 'Test Connection' button. The right panel, titled 'BACnet Server Configuration', contains a table of settings: 'Enabled' (checked), 'IP Address' (192.168.103.237) with a refresh icon, 'Port Number' (47808), 'Instance ID' (1234), 'Instance Name' (1), 'Network Number' (1), 'Polling Interval' (1) with a 'secs' label, and 'Import Events' (All Events). At the bottom of the main area are 'Edit', 'Save', 'Cancel', and 'Delete' buttons.


Click **Edit** and configure the following parameters:

- **Integration Mode:** Select the **BACnet Server** option.

COSEC Web Server

- **Web URL:** Configure the Web URL of the API service of the COSEC Web Server application.
- **User Name:** Configure the User Name, for example sa (It can be any user who has API Access Rights of the COSEC Web Server application.)
- **Password:** Configure the Password as set for the COSEC Web Server application.

BACnet Server Configuration

- **Enable:** Select the check box to enable BACnet Server configuration.
- **IP Address:** Select the IP Address to be assigned to the BACnet Server from the drop-down list. Click **Refresh**  to refresh the IP List. This is the IP Address list of multiple networks incase the PC on which Integrate is installed has multiple network connections (excluding loopback IP, that is 127.0.0.1)

- **Port Number:** Configure the Port Number of the BACnet Server (this is the free port of the PC on which Integrate is running. This port will be used for communication between the Integrate via BACnet Server and the BMS Client).
- **Instance ID:** Configure the Instance ID which will be used by BACnet Server to communicate with the Client. This will be provided by the Client.
- **Instance Name:** Configure the Instance Name which will be used by BACnet Server to communicate with the Client. This will be provided by the Client.
- **Network Number:** Configure the Network Number which will be used by BACnet Server to communicate with the Client. This will be provided by the Client.
- **Polling Interval:** Specify the Polling Interval in seconds between two consecutive data fetch requests from COSEC Integrate to COSEC Web Server.
- **Import Events:** Select the Events to be imported from COSEC Web Server options — Live Events or All Events.
- **Event Retrieval In:** If Import Events is selected as **Live Events**, configure the Event Retrieval time in seconds between two consecutive retrieval requests from COSEC Integrate to COSEC Web Server for Live events.

Click **Test Connection** to test the connection with COSEC Web Server.

Click **Save** to save the configuration. Now, click **Start Service**. Once the service starts, the BACnet Server Configuration will be fetched by the COSEC Web Server.

Configure the BACnet Server and BACnet Client List parameters in COSEC Web to enable the data transfer from COSEC Web to the BACnet clients via COSEC Integrate. For details, refer to Admin Module > System Configuration > BACnet Configuration in User Guide.

For details regarding the Event interactions handled in BACnet, refer to [“List of Event Interactions handled in BACnet Integration”](#).

List of Event Interactions handled in BACnet Integration

Door_Alarm_State values based on the event Interaction.

Event ID	Description	Enum Description	Enum Value	Remark
301 → Dead-man timer expired Alarm– User IN	Dead Man timer expiry alarm generated by <user id : Username : Username>	dead-man-timer-expired	256	
302 → Duress detection	Duress detection alarm detected for <user id : Username>	duress-alarm	257	
303 → Panic Alarm	Panic Alarm generated by <user id : Username>	panic-alarm	258	
304 → FP Memory Full – Alarm	FP Memory Full Alarm generated for Internal memory	fp-full-alarm	259	
	FP Memory Full Alarm generated for external memory			
305 → Door Held open too long	Alarm for door held open for too long generated.	door-open-too-long	2	
306 → Door Abnormal	Door Abnormal alarm generated.	door-abnormal-alarm	260	
307 → Door force open	Door Force Open alarm generated.	forced-open	3	
308 → Door Controller Offline	Door Controller Offline Alarm generated.	door-offline	261	
309 → Door Controller -Fault	Alarm for fault in Door Controller generated	door-fault	5	
310 → Tamper Alarm	Tamper Alarm generated.	tamper	4	
314 → RTC	Power ON/OFF Detected <for external reader> (time not in sync)	rtc-fault	262	
	low battery detected <for external reader>			
	RTC Not Detected <for external reader>			

315 → Event Buffer Full	Event Buffer Full	event-buffer-full	263	
316→ Zone Empty	Zone Empty alarm generated.(This event is discarded)	zone-empty-alarm	264	
317→ Intercom - panic	Intercom Panic Alarm by extension number {extn number}generated.	intercom-panic	265	
318→ Occupancy Violated Alarm	Occupancy Rule Violated by <user id : Username>	occupancy-violation	266	
319→ Tail- Gating Alarm	Tail - Gating by <user id : Username>	tail-gating	267	
320→Man Trap Timer Violated Alarm	Man Trap Timer Violated by <user id : Username>	man-trap-timer-violation	268	
321→Access Denied Aalarm	Access Denied Alarm generated.	access-denied-alarm	269	
322→Multiple Unauthorized Access Alarm	Multiple Unauthorized Attempts count reached by by <user id : Username>	multiple-unauthorized-access	270	
323-> Custom Alarm 1	Custom Alarm 1 generated.	custom-alarm1	271	
324->Custom Alarm 2	Custom Alarm 2 generated.	custom-alarm2	272	
325-> Custom Alarm 3	Custom Alarm 3 generated.	custom-alarm3	273	
326→ User Unidentified	User Unidentified Alarm Generated	user-unidentified-alarm	274	
327->Anti-Pass Back Violated Alarm	Anti-Pass Back Rule Violated by <user id : Username>	passback-violation	275	
328->Access Route Violated Alarm	Access Route Violated by <user id : Username>	access-route-violation	276	
329-> Raise Alarm	IO Link Activated by <user ID : UserName>	raise-alarm	277	
330 → Lock Open Too Long	Alarm for lock open for too long generated.	lock-open-to-long	278	
331 → Lock Abnormal	Lock abnormal alarm generated.	lock-abnormal	279	

332 → Manual Lock Override	Manual lock override alarm generated.	manual-lock-override	280	
351 → Alarm acknowledged	Alarm acknowledged through System Interlock/ Web Jeeves/ACMS/special Functions. Alarm auto acknowledged	alarm-acked	281	
352 → Alarm cleared	Alarm cleared through System Interlock/Web Jeeves/ACMS/Special Functions. Alarm auto cleared	normal	0	When Multiple Alarms are active and any of them is cleared (while door is still in alarm mode) then Door Alarm State will be set to 'alarm (1)' value. Enum value will be 1.
353 → Alarm Re-issued	Alarm Re-issued	This will get the previously issued Alarm state.		
354 → Anti-Loiter Zone Violated Alarm	Anti-Loiter Zone Rule Violated by <user id : Username>	anti-loiter-violation	282	
333 → Access Route Timer Violated Alarm	Access Route Timer Violated by <User ID : Username> at <Door Name>	access-route-timer-violation	283	
334 → Threshold Temperature Exceeded	Threshold Temperature Exceeded by <User ID : Username>	threshold-temperature-exceeded	284	
335 → Face Mask Not Detected	Face Mask Not Detected for <User ID : Username>	face-mask-not-detected	285	
		Alarm	1	When Multiple Alarms are active and any of them is cleared (while door is still in alarm mode) then Door Alarm State will be set to 'alarm (1)' value. Enum value will be 1.

Door_Status values based on the event Interaction.

Event ID	Description	Enum Description	Enum Value	Remark
201 → Door Status changed	Door status normal.	Normal	1024	

(generate this event whenever the door state is changed through special function or Door M&C page)	Door status locked.	LOCKED	1025	
	Door status unlocked.	UNLOCKED	1026	
(Also generate this event for API commands and when external IO link command is received)	Door Status armed	ARMED	1027	
	Door status disarmed.	DISARMED	1028	
202 → Dead-man timer changed	Dead man timer activated.	No Change in State.		
(generate this event whenever Dead-man timer activated or expired/deactivated)	Dead man timer deactivated.	No Change in State.		
203 → DND status changed	DND Status activated	DND-ACTIVE	1029	
	DND Status deactivated	DND-INACTIVE	1030	
204 → Aux input status changed	Aux input activated.	AUX-IN-ACTIVE	1031	
Generate this event whenever Aux input status is changed.	Aux input normal.	AUX-IN-NORMAL	1032	
	Aux input fault(open)	AUX-IN-FAULT-OPEN	1033	
(This event with Disabled in special field-1 is generated against Door M&C user input.)	Aux input fault(short)	AUX-IN-FAULT-SHORT	1034	
	Aux input disabled.	AUX-IN-DISABLE	1035	
205 → Aux output status changed	Aux output activated.	AUX-OUT-ACTIVE	1036	

(This event with Disabled in special field-1 is generated against Door M&C user input.)(Also generate this event for API commands and when external IO link command is received)	Aux output normal.	AUX-OUT-NORMAL	1037	
	Aux output disabled.	AUX-OUT-DISABLED	1038	
206 → Door sense input status	Door sense input normal	DOOR-SENSE-NORMAL	1039	
(This event with Disabled in special field-1 is generated against Door M&C user input.)	Door sense input fault(open)	DOOR-SENSE-FAULT-OPEN	1040	
	Door sense input fault(short)	DOOR-SENSE-FAULT-SHORT	1041	
	Door sense input disabled.	UNUSED	4	
207 → Door Controller Communication status	Door controller ON Line	DOOR-ONLINE	1043	
(generate this event whenever the DC status changed to ON line or change to OFF Line)	Door controller OFF Line	DOOR-OFFLINE	1044	
	Door controller is upgrading	DOOR-UPGRADING	1045	
208 → Door Open/ Close	<User id : Username> has opened the door	OPENED	1	
	Door Open/Close - Open	OPENED	1	
	Door state changed to Close	CLOSED	0	
	<User id : Username> has not operated the door	CLOSED	0	
	Door Open/Close - NotOperated	CLOSED	0	

209 → Lock Open/ Close	<User id : Username> has opened the lock.	OPENED	1	
	<User id : Username> has closed the lock.	CLOSED	0	
	<User id : Username> has not operated the lock	CLOSED	0	
	Manual lock override.	LOCK-OVERRIDE	1046	

Present Value in Panel Custom Object based on Event Interaction

Event ID	Description	Property Value
302 → Duress detection	Duress detection alarm detected for <user id : Username>	duress-alarm
308 → Door Controller Offline	Door Controller Offline Alarm generated.	door-offline
311 → Master Controller Mains fail Alarm	Alarm for Mains fail of Master Controller generated.	master-controller-mains-fail-alarm
312 → Master Controller Battery fail	Alarm for Battery fail of Master Controller generated.	master-controller-battery-fail-alarm
313 → Master Alarm – MC Alarm input	MC input Master alarm generated	master-alarm-input
315 → Event Buffer Full	Event Buffer Full	event-buffer-full
316 → Zone Empty	Zone Empty alarm generated.(This event is discarded)	zone-empty-alarm
318 → Occupancy Violated Alarm	Occupancy Rule Violated by <user id : Username>	occupancy-violation
353 → Alarm Re-issued	Alarm Re-issued	alarm-reissued
352 → Alarm cleared	Alarm cleared through System Interlock/Web Jeeves/ACMS/Special Functions. Alarm auto cleared	normal
204 → Aux input status changed	Aux input activated.	AUX-IN-ACTIVE
Generate this event whenever Aux input status is changed.	Aux input normal.	AUX-IN-NORMAL

	Aux input fault(open)	AUX-IN-FAULT-OPEN
(This event with Disabled in special field-1 is generated against Door M&C user input.)	Aux input fault(short)	AUX-IN-FAULT-SHORT
	Aux input disabled.	AUX-IN-DISABLE
205 → Aux output status changed	Aux output activated.	AUX-OUT-ACTIVE
(This event with Disabled in special field-1 is generated against Door M&C user input.)(Also generate this event for API commands and when external IO link command is received)	Aux output normal.	AUX-OUT-NORMAL
As no event is received for PANEL connected and disconnected.	Door controller ON Line	PANEL_ONLINE
	Door controller OFF Line	PANEL_OFFLINE

Generic Notes

Sheet Name	Applicable Device	Naming Convention	Description	Instance Number
Binary Output-IO	IO 800	{COSEC_Door Name}_AUXOUT_{PortNo}_{1}{MID}{0}/{2}{MID}{DID}		
		{COSEC_Door_Name}	Device Name mentioned in COSEC Software. Example: IO Controller 1	
		Direct Door	Naming Convention : {COSEC_Door Name}_AUXOUT_{PortNo}_{1}{MID}{0}	Direct Door : {PortNo}{1}{MID}{0}
		Panel Door	Naming Convention : {COSEC_Door Name}_AUXOUT_{PortNo}_{2}{MID}{DID}	Panel Door : {PortNo}{2}{MID}{DID}
		PortNo	1 to 8	
Multistate Input	IO 800	{COSEC_Door Name}_AUXIN_{PortNo}_{1}{MID}{0}/{2}{MID}{DID}		
		{COSEC_Door_Name}	Device Name mentioned in COSEC Software. Example: IO Controller 1	
		Direct Door	Naming Convention : {COSEC_Door Name}_AUXIN_{PortNo}_{1}{MID}{0}	Direct Door : {PortNo}{1}{MID}{0}

		Panel Door	Naming Convention : {COSEC_Door Name}_AUXIN_{PortNo}_{2}{M ID}{DID}	Panel Door : {PortNo}{2}{MID}{DID}
		PortNo	1 to 8	
COSEC Panel	COSEC PANEL (All variants)	PANEL	{COSEC_Panel Name}_{MID}	{MID}
		{COSEC_PANEL_Name}	Device Name mentioned in COSEC Software. Example: PANEL 1	
Access Door	Direct Doors and Panel Doors All the Door Controllers	{COSEC_Door Name}_{1}{MID}{0}/ {2}{MID}{DID}		
		{COSEC_Door_Name}	Device Name mentioned in COSEC Software. Example: Door 1	
		Direct Door	Naming Convention : {COSEC_Door Name}_{1}{MID}{0}	Direct Door : {1}{MID}{0}
		Panel Door	Naming Convention : {COSEC_Door Name}_{2}{MID}{DID}	Panel Door : {2}{MID}{DID}

Binary Output-IO

Event ID	Description	Present Value	Value	Remarks
205 → Aux output status changed	Aux output activated.	ACTIVE	1	By default, when there are no AUX Out event then Present Value will be INACTIVE.
205 → Aux output status changed	Aux output normal.	INACTIVE	2	Whenever an Event is generated for AUX Out Activated then Event_State will be set to OFF_NORMAL. Present value reference shall be updated to ACTIVE.

Multistate Input-IO

Event ID	Description	Present Value will be fetched from Array	State Text
204 -> Aux input status changed	Aux input activated.	0	{{"AUX-IN-ACTIVE"},"AUX-IN- NORMAL"},"AUX-IN-FAULT- OPEN"},"AUX-IN-FAULT-SHORT"},"AUX- IN-DISABLED}}

204 -> Aux input status changed	Aux input normal.	1	{{"AUX-IN-ACTIVE"},"AUX-IN-NORMAL"},"AUX-IN-FAULT-OPEN"},"AUX-IN-FAULT-SHORT"},"AUX-IN-DISABLED}}
204 -> Aux input status changed	Aux input fault(open)	2	{{"AUX-IN-ACTIVE"},"AUX-IN-NORMAL"},"AUX-IN-FAULT-OPEN"},"AUX-IN-FAULT-SHORT"},"AUX-IN-DISABLED}}
204 -> Aux input status changed	Aux input fault(short)	3	{{"AUX-IN-ACTIVE"},"AUX-IN-NORMAL"},"AUX-IN-FAULT-OPEN"},"AUX-IN-FAULT-SHORT"},"AUX-IN-DISABLED}}
204 -> Aux input status changed	Aux input disabled.	4	{{"AUX-IN-ACTIVE"},"AUX-IN-NORMAL"},"AUX-IN-FAULT-OPEN"},"AUX-IN-FAULT-SHORT"},"AUX-IN-DISABLED}}

COSEC Panel

Event ID	Description	Present Value State text reference	Event Type
302 -> Duress detection	Duress detection alarm detected for <user id : Username>	duress-alarm	ALARM
308 -> Door Controller Offline	Door Controller Offline Alarm generated.	door-offline	ALARM
311 -> Master Controller Mains fail Alarm	Alarm for Mains fail of Master Controller generated.	master-controller-mains-fail-alarm	ALARM
312 -> Master Controller Battery fail	Alarm for Battery fail of Master Controller generated.	master-controller-battery-fail-alarm	ALARM
313 -> Master Alarm – MC Alarm input	MC input Master alarm generated	master-alarm-input	ALARM
315 -> Event Buffer Full	Event Buffer Full	event-buffer-full	ALARM
318 -> Occupancy Violated Alarm	Occupancy Rule Violated by <user id : Username>	occupancy-violation	ALARM
353 -> Alarm Re-issued	Alarm Re-issued	alarm-reissued	ALARM
352 -> Alarm cleared	Alarm cleared through System Interlock/ WebJeeves/ACMS/SpecialFunctions. Alarm auto cleared	normal	ALARM
204 -> Aux input status changed	Aux input activated.	AUX-IN-ACTIVE	Transaction

Generate this event whenever Aux input status is changed.	Aux input normal.	AUX-IN-NORMAL	Transaction
	Aux input fault(open)	AUX-IN-FAULT-OPEN	Transaction
(This event with Disabled in special field-1 is generated against Door M&C user input.)	Aux input fault(short)	AUX-IN-FAULT-SHORT	Transaction
	Aux input disabled.	AUX-IN-DISABLE	Transaction
205 -> Aux output status changed	Aux output activated.	AUX-OUT-ACTIVE	Transaction
(This event with Disabled in special field-1 is generated against Door M&C user input.)(Also generate this event for API commands and when external IO link command is received)	Aux output normal.	AUX-OUT-NORMAL	Transaction



MATRIX COMSEC

Head Office:

394-GIDC, Makarpura, Vadodara - 390010, India.

Ph:(+91) 18002587747

E-mail: Tech.Support@MatrixComSec.com

www.MatrixComSec.com