Zoho People

Biometric
Integration

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INTRODUCTION

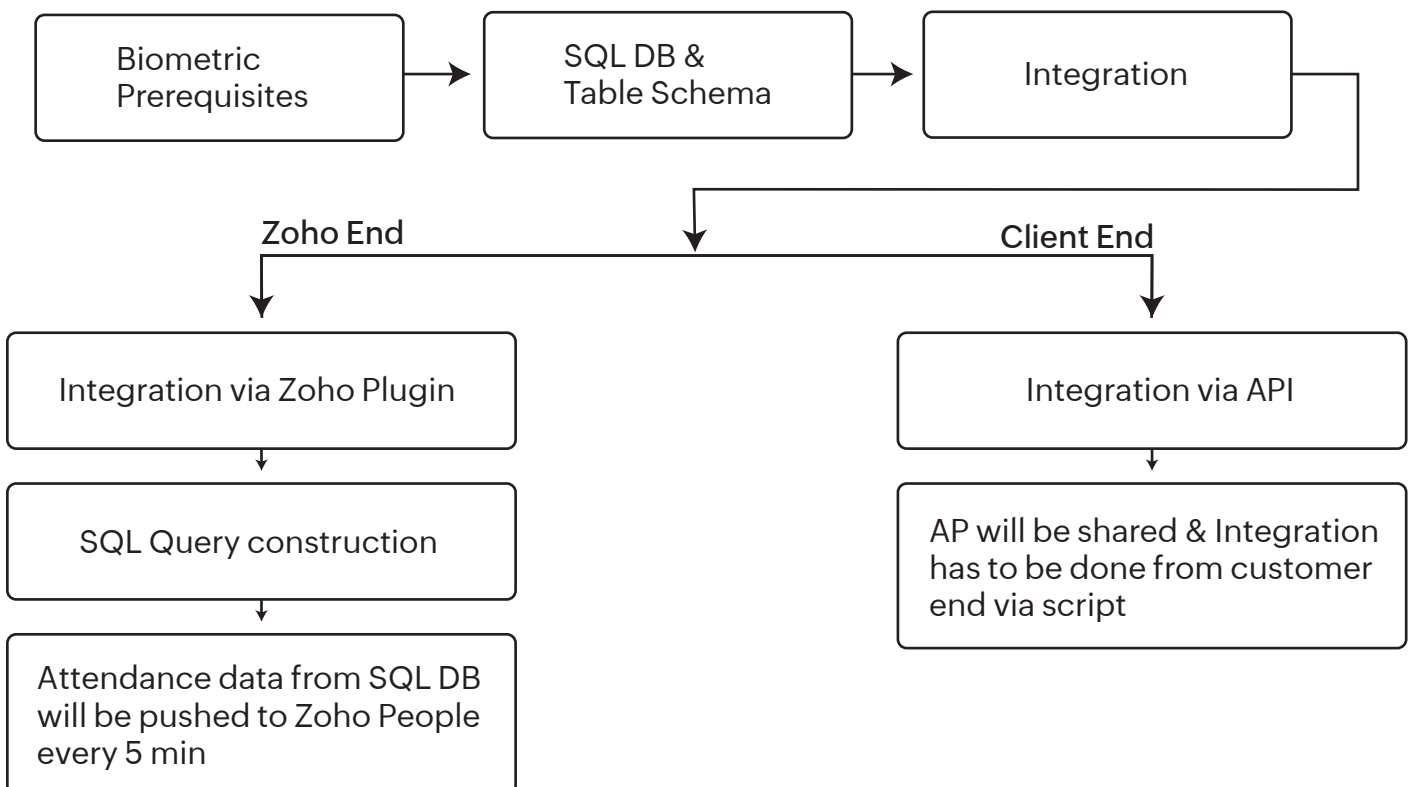Biometric devices can be integrated with Zoho People in two ways:

» API

» Plugin Integration

Integration using API method

Using this API, the data can directly be pushed to Zoho People from the biometric device. Configuration of the same has to be done from the client's end. Please note that the Attendance Bulk Import API has threshold limitations of 10 requests/minute and a lock period of 5 minutes.

Plugin integration

Another way of integrating the biometric device with Zoho People is through the configuration of a plugin using **Tomcat server**.

```
[Biometric          →  [SQL DB &         →  [Integration]
 Prerequisites]         Table Schema]

        Zoho End                              Client End

[Integration via Zoho Plugin]          [Integration via API]
         ↓                                      ↓
[SQL Query construction]               [AP will be shared & Integration
         ↓                              has to be done from customer
[Attendance data from SQL DB            end via script]
 will be pushed to Zoho People
 every 5 min]
```

TERMINOLOGIES

BIOMETRIC DEVICE

It is an electronic machine that is made for identification and authentication through physiological and behavioral characteristics like face recognition, fingerprint reading, palm recognition, and others.

TOMCAT SERVER

It is an open-source Java servlet container that implements many Java Enterprise Specs such as the Websites API, Java-Server Pages and the Java Servlet.
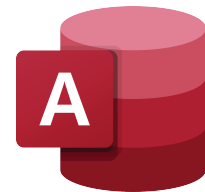
Apache Tomcat

MySQL (DATABASE)

MySQL is an open-source relational database management system.The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

MS ACCESS

Microsoft Access is a database management system from Microsoft that combines the relational Access Database Engine with a graphical user interface and software development tools.

MS SQL SERVER

Microsoft SQL Server is a relational database management system. It is a software product with the primary function of storing and retrieving data as requested by other software applications.

PREREQUISITES

We support MS SQL SERVER, MS Access and MYSQL database and the query format as mentioned below.

Note: It is important to have an IT person or your biometric vendor at your side to proceed with the integration.

Query Requirements:

Please generate the below query format in order to fetch the information from your database.

"Select employeeID, eventTime, isCheckin, downloadDate from Attendance"

employeeID - Should be same as the employee-Id in Zoho People*

eventTime - Attendance In-punch and Out-punch (in date time format)

ischeckin - 1/0 (1 denotes check-in and 0 denotes check-out)

downloadDate - Date and time at which the attendance data is pushed to database (in date time format).
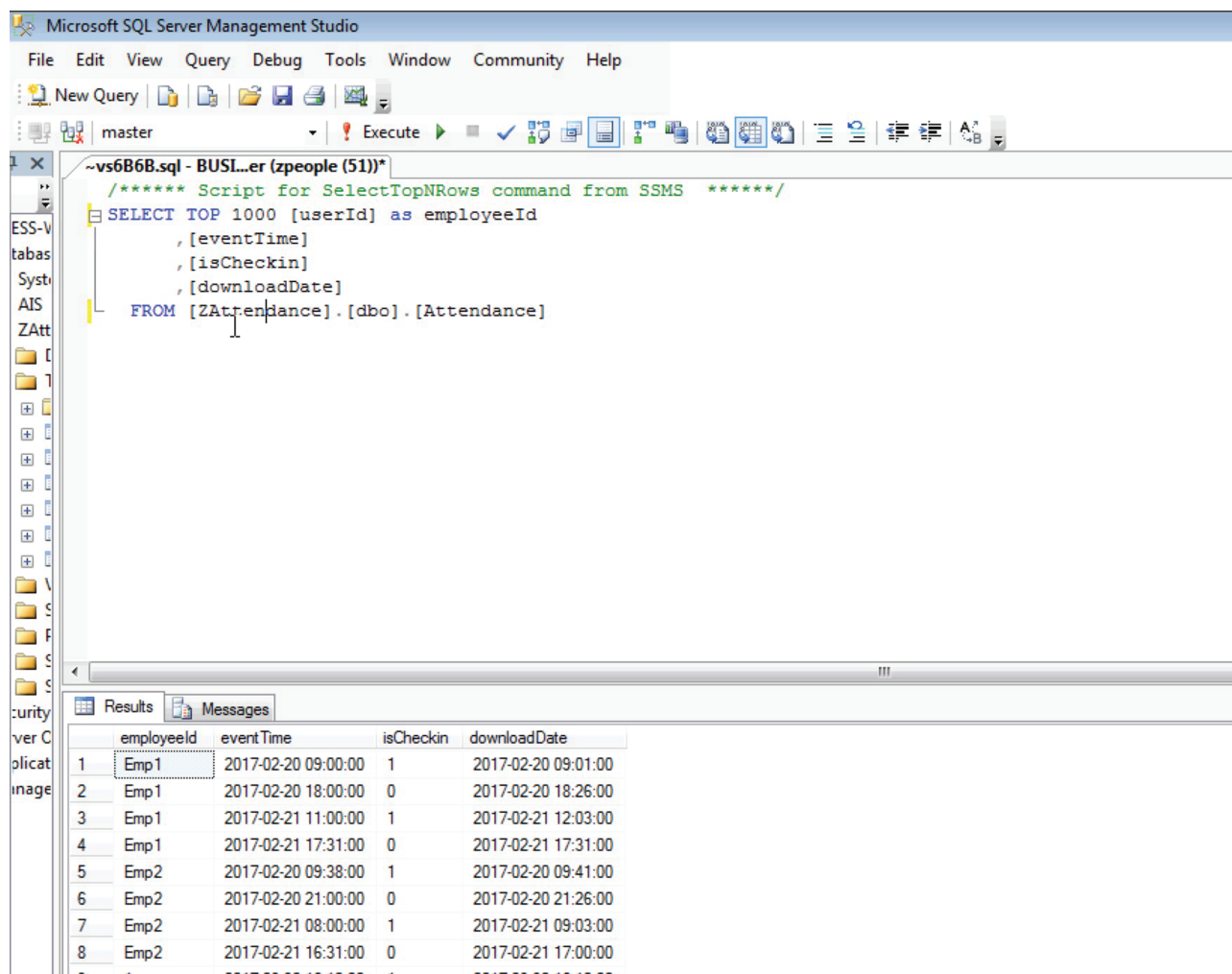
Softwares that needs to be installed

Apache Tomcat 8
Click on 32-bit/64-bit Windows Service Installer Under Core.

Java 8
Download a JDK file under Java SE Development Kit that suits your windows configuration.

Please find the sample table schema attached below for your reference

Note:

• If "Downloaddate" column is not available in the table then we can't assure all the data from the SQL DB will get pushed to Zoho People and there might be a possible change of data loss.

• If there are multiple shifts for your employees, all of them have to be mapped in Zoho People.

• If the biometric id is different from the Zoho People employee id, then the biometric id has to be mapped in Zoho People. Go to **Attendance → Settings → Userid Mapping** to do this mapping.

• The integration is fully dependent on the server system where the biometric data is stored. If it crashes or reboots due to improper shutdown of the system, it may corrupt the configuration page. In such a scenario, we will have to reconfigure the integration.

Ensure whether **Java** and **Apache Tomcat** are installed. Check under Local disc C → Program files or Program files(86) → whether JAVA/Tomcat is installed. If not, install both the softwares.

Tomcat Setup

Name: Tomcat8Zoho

Shut down port: 8989

Connect port / Tomcat server port no: 8584 (check whether this port no is not used for any the service)

Start-up Type: Start → Search → Service → Tomcat8Zoho (right click) → properties → Startup Type → Automatic

Install war file

Click on the below link to download the war file.

https://www.zoho.com/people/downloads/ZAttendance.war

Navigate to Local disc C → Program file → Apache software foundation → Tomcat8 → Web apps → Paste the war file → refresh → File will be extracted.

Routing to plugin page

Check whether you're able to hit the plugin page via **localhost:8584/ZAttendance**

Connection URL

Specify connection url: Copy and paste the eg URL and update the SQL Database Name

Datebase User Name and Password: Customer have to provide it

Delay Time: 5 min

Sleep Time: 5 min

Generate Auth Token

api-console.zoho.in (or com/eu - based on the DC) → Self client → Generate Code → Scope → zohopeople.attendance.all → Time: 10min → Create → Copy the CODE Client Secret → Copy → Client ID and Client Secret → paste the same in plugin configuration.

Update time Zone: Select your location's time zone as mentioned in your SQL Database.

Generate Refresh Token: Paste the Client ID / Client Secret / CODE / > Select the DC > Generate > **Update the Refresh Token.**

Database Configuration

eventTime ,[DownloadDate] FROM [etimetracklite1].[dbo].[#DeviceLogs_%M_%Y#] where DownloadDate>=$1 and DownloadDate<$2

EX : select employeeId,eventTime,IsCheckin from Attendance where evenCreationTime >= $1 and evenCreationTime<$2
Dynamic Table Format Ex : #Attendance_%M_%Y#

* Refresh Token Generate	* Client ID	* Client Secret	TimeZone
....	....	....	IST

Start Time	Sleep Time(mins)
00:00:00	5

Ex Time format :
HH:mm:ss

Note: While generating the access token, ensure that it is generated from the admin account and the time zone is aligned with the check-in/out location.

SQL Query

MSSQL & MS ACCESS Database:

When all column as per prerequisite:

Static Table:

select [employeeID] as employeeId, ischeckin as isCheckin ,[eventTime] as eventTime, [downloadDate] FROM [ZAttendance].[dbo].[Att-checkin] where DownloadDate>=$1 and DownloadDate<$2

Dynamic Table:

select [employeeID] as employeeId, ischeckin as isCheckin ,[eventTime] as eventTime, [DownloadDate] FROM #Tablename_%M_%Y# where DownloadDate>=$1 and DownloadDate<$2

When download date column is not available: (Delay time should be 1-2 hours)

select [Id] as employeeId, case [Checkin] when 'IN' then 1 when 'OUT' then 0 end as isCheckin ,[EventTime] as eventTime   FROM [ZAttendance].[dbo].[Att-checkin] where eventTime>=$1 and eventTime<$2

When IN/OUT is not specified in the table, push each punch as both IN&OUT to ZOHO

select [empid] as employeeId, '1' as isCheckin, [EventTime] as eventTime, [downloaddate] FROM [ZAttendance].[dbo].[Att_noCheck] where DownloadDate>=$1 and DownloadDate<$2
UNION
select [empid] as employeeId, '0' as isCheckin, [EventTime] as eventTime, [downloaddate] FROM [ZAttendance].[dbo].[Att_noCheck] where DownloadDate>=$1 and DownloadDate<$2

Alternate IN & Out punches

select [Id] as employeeId ,[EventTime] as eventTime ,[DownloadDate] FROM [ZAttendance].[dbo].[Att-checkin] where DownloadDate>=$1 and DownloadDate<$2

Tomcat > config.properties > url should be changed to bulkImportRawEntry instead of bulk import.

Manual push (Testing)

select [Id] as employeeId, case [Checkin] when 'IN' then 1 when 'OUT' then 0 end as isCheckin ,[EventTime] as eventTime ,[DownloadDate] FROM [ZAttendance].[dbo].[Att-checkin] where EventTime>=$1 and EventTime<$2 and Id='1001'

Once all set, Please amend the SQL Query (Replace where DownloadDate to where CheckedTime and pass the user_id in string Id='User_id') to fetch the data from DB and update the same to Zoho People manually to ensure the integration is working flawless

Dynamic param which need to be entered in the SQL Query based on the column header in the table:

ID: User ID from Database

Checked Time: check-in and check-out from Database

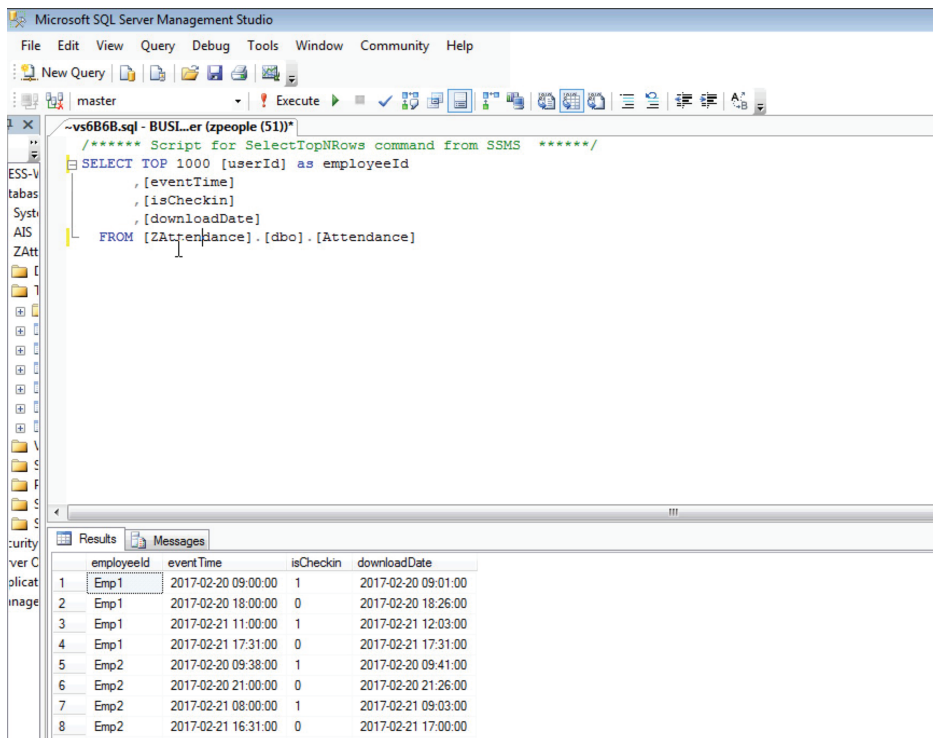**DownloadDate:** DownloadDate from Database

Checkin: IsCheckin (1/0) from Database

Att-checkin: Table name

When its a dynamic table: #Tablename_%M_%Y# (Need to use this in Query)

Sample SQL databaseTable:

Here, the table headers are different from the pre-requisites and you need to follow the above step to construct the query.

Query failed to fetch the data (Get Record Count): Result Count to 0
Navigate to Program file C → tomcat → logs → Catalina → Scroll to bottom of note pad → *"Connection Refused: Connect"*

Navigate to Program file C → windows → syswow64 → sql_server_manager → SQL server network configuration → Protocol SQLExpress → TCP/IP → IP Address → TCP port: 1433 port → Apply → Ok.

<or>

Navigate to start → search → computer management → Sql server network management or configuration (second option on left) → TCP/IP → IP Address → TCP port: 1433 port → Apply → Ok.

Restart SQL Server Service: SQL Server service → SQL Server (MSSQLSERVER) → Right click → Properties → Restart.

Query failed to update record (Fetch & Upload): *"Access token not found"*
Navigate to Program file C → tomcat → Config.properties → Using note pad open the configuration → update appropriate DC in targetURL and acesstokenURL

If people domain is other than .com (.in or .eu), update the domain in config.properties in tomcat folder for both targetURL and acesstokenURL.

API Response in Logs:

Once data has been pushed from SQL DB to ZOHO DB - Cross-check the same by navigating to Program file C → Tomcat → logs → Catalina → API Response: Success

Automate the Sync:

Once the testing works fine, kindly amend the SQL Query to automate the biometric sync by clicking "Resume sync" and appending the run time.