Install Microsoft SQL Server

This chapter provides information about installing and setting up Microsoft SQL.

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Encrypted Database Not Supported

The IM and Presence Service does not support an encrypted database with Microsoft SQL Server, except in the following cases:

- The IM and Presence Service supports an encrypted compliance database for the Message Archiver feature. For 11.5(x) releases, this feature is supported as of 11.5(1)SU5. This feature is not supported for 12.0(x), but is supported for 12.5(1).

Install and Setup Microsoft SQL Server

Before you begin

- Read the security recommendations for the Microsoft SQL database in the About Security Recommendations section.
- For information on supported versions, see External Database Setup Requirements.
- To install the MS SQL Server, refer to your Microsoft documentation.

Note In compliance with XMPP specifications, the IM and Presence Service node uses UTF8 character encoding. This allows the node to operate using many languages simultaneously and to display special language characters correctly in the client interface. If you want to use Microsoft SQL with the node, you must configure it to support UTF8.

Connect to the MS SQL Server using **Microsoft SQL Server Management Studio**.

Create a New Microsoft SQL Server Database

Use this procedure to create a new Microsoft SQL Server database.

Procedure

Step 1 Enable SQL server and Windows authentication:
a) In the left navigation pane, right-click the name of the Microsoft SQL Server, then click **properties**.
b) Click **Enable SQL Server and Windows Authentication mode**.

Step 2 In the left navigation pane, right-click **Databases** and click **New Database**.

Step 3 Enter an appropriate name in the **Database name** field.

Step 4 Click **OK**. The new name appears in the left navigation pane nested under databases.

Configure MSSQL Named Instance

Microsoft SQL Server Browser service is responsible for listening on UDP port 1433 for incoming connections to a named instance. The SQL Server Browser service responds to the client with a dynamically assigned TCP port number, which is used for that session connection to the named instance.

IM and Presence does not support dynamic port allocation, so you need to configure the Microsoft SQL Server instance to use a static TCP port.

Use this procedure to statically assign a listening port for a named instance:

Procedure

Step 1 Log in to the Microsoft server where SQL Server is installed.

Step 2 Select **Start > Microsoft SQL Server > SQL Server Configuration.**

Step 3 In the SQL Server Configuration Manager, select **SQL Server Network Configuration > Protocols for <named_Instance_name>**, and then select the TCP\IP protocol name.

Step 4 In the TCP\IP properties for the named instance, select the **IP Address** tab. The configuration will have several IP configuration sections, such as IP1, IP2, IP3, IP4, IP5, IP6 and IPALL.

Step 5 Perform the following steps for each of the above referenced IP configuration sections:
a) Remove any configuration in the **<TCP Dynamic Ports>** field.
b) Choose a TCP port you want to use for the named instance and update the **TCP Port** field with the chosen port.
c) Add a firewall rule for the SQL named instance.

Note
When configuring the external database in IM and Presence, make sure to update the SQL TCP port to the value that is defined in the previous steps.

Create a new Login and Database User

Use this procedure to create a new login and Microsoft SQL database user.

Procedure

Step 1 In the left navigation pane, right-click **Security** > **Login** and click **New Login**.

Step 2 Enter an appropriate name in the **Login name** field.

Step 3 Check the **SQL Server authentication** check box.

Step 4 Enter a new password in the **Password** field and confirm the password in the **Confirm password** field.

Step 5 Check the **Enforce password policy** check box.

Note
Ensure that the **Enforce password expiration policy** is not checked. This password is used by IM and Presence Service to connect to the database and must not expire.

Step 6 Choose the database you want to apply this new user to from the **Default database** drop-down list.

Step 7 In the left navigation pane of the **Login - New** window, click **User Mapping**.

Step 8 Under the **Users mapped to this login** list, check the database to which you want to add this user.

Step 9 Click **User Mapping**, in the **Map** column of the **Users mapped to this pane** pane, check the check box of the database you have already created.

Step 10 In **Server Roles**, ensure that only the **public** role check box is checked.

Step 11 Click **OK**. In **Security** > **Logins**, the new user is created.

Grant Database User Owner Privileges

Use this procedure to grant ownership of a Microsoft SQL database to a database user.

Procedure

Step 1 In the left navigation pane click **Databases**, then click on the name of the database that you have created and click **Security** > **Users**.

Step 2 Right-click on the name of the database user to who you want to add owner privileges, then click **Properties**.

Step 3 In the Database User pane, click **Membership**.

Step 4 In the **Role Members** list, check the **db_owner** check box.

Step 5 Click **OK**.

[Optional] Database User Access Restrictions

Use this procedure if you want to remove the database user as the database owner and apply further optional restrictions to the database user on the Microsoft SQL Server database.

Caution If during an IM and Presence Service upgrade, there is a database schema upgrade, then the database user must have owner privileges for the database.

Before you begin

Ensure that you carry out the procedures in the Configure IM and Presence Service for External Database chapter.

Procedure

Step 1 Create a new database role for executing stored procedures:

a) In the left navigation pane click **Databases**, then click the name of the database to which you want to add new database roles.
b) Right-click **Roles**, and click **New Database Role**.
c) In the **Database Role** window, click **General**.
d) Enter an appropriate name in the **Role name** field.
e) Click **Securables**, then click **Search** to open the **Add Objects** window.
f) Choose the **Specific Objects** radio button, and click **OK**.
g) Click **Object Types** to open the **Select Object Types** window.
h) In the **Select Object Types** window, check the **Stored procedures** check box and click **OK**. Stored procedures is then added to the **Select these object types** pane.
i) Click **Browse**.
j) In the **Browse for Objects** window, check the following check boxes:

- [dbo][jabber_store_presence]
- [dbo][ud_register]
- [dbo][ps_get_affiliation]
- [dbo][tc_add_message_clear_old]
- [dbo][wlc_waitlist_update]

k) Click **OK**. The new names appear in the **Enter the object names to select** pane.
l) On the **Select Objects** window, click **OK**.
m) From the **Database Role** window, click the first entry in the list of objects in the **Securables** list.
n) In the **Explicit** list, check the **Grant** check box for the **Execute** permission.
o) Repeat step 13 and 14 for all objects in the **Securables** list.
p) Click **OK**.

A new database role is created in **Security** > **Roles** > **Database Roles**.

Step 2 To update the database user's database role membership:

a) Under **Security** > **Users**, right-click on the database user you have created, then click **Properties**.
b) In the **Database User** window, click **Membership** in the left navigation pane.
c) In the **Role Members pane**, uncheck the **db_owner** check box.
d) Check the check boxes for **db_datareader**, **db_datawriter**, and the database role which you created in step 1.

Step 3 Click **OK**.

Default Listener Port Setup for Microsoft SQL Server

Assign a TCP/IP port number to the SQL Server Database Engine as the default listener port.

Procedure

Step 1 From the SQL Server Configuration Manager, click **SQL Server Network Configuration** > **Protocols** > **TCP/IP** in the **Console**.

Step 2 In the **TCP/IP Properties** dialog box, on the IP Addresses tab, right-click on the IP address that you want to configure and then click **Properties**.

Step 3 Check the **TCP Dynamic Ports** dialog box, if it contains the value 0, delete the 0. This prevents the Database Engine from listening on dynamic ports.

Step 4 In the **IPn Properties** pane, type the port number you want this IP address to listen on in the **TCP Port** pane.

Step 5 Click **OK**.

Step 6 Click **SQL Server Services** in the **Console** pane.

Step 7 In the **Details** pane, right-click **SQL Server** (instance name) and then click **Restart**, to stop and restart the Microsoft SQL Server.

Database Migration Required for Upgrades with Microsoft SQL Server

If you have Microsoft SQL Server deployed as an external database with the IM and Presence Service and you are upgrading from 11.5(1), 11.5(1)SU1, or 11.5(1)SU2, you must create a new SQL Server database and migrate to the new database. This is required due to enhanced data type support in this release. If you don't migrate your database, schema verification failure will occur on the existing SQL Server database and services that rely on the external database, such as persistent chat, will not start.

After you upgrade your IM and Presence Service, use this procedure to create a new SQL Server database and migrate data to the new database.

Note This migration is not required for Oracle or PostgreSQL external databases.

Before You Begin

The database migration is dependent on the `MSSQL_migrate_script.sql` script. Contact Cisco TAC to obtain a copy.

Table 1:

Step	Task
Step 1	Create a snapshot of your external Microsoft SQL Server database.
Step 2	Create a new (empty) SQL Server database. For details, see the following chapters in the Database Setup Guide for the IM and Presence Service: **1.** "Microsoft SQL Installation and Setup"—See this chapter for details on how to create your new SQL server database on your upgraded IM and Presence Service. **2.** "IM and Presence Service External Database Setup"—After your new database is created, refer to this chapter to add the database as an external database in the IM and Presence Service.
Step 3	Run the System Troubleshooter to confirm that there are no errors with the new database. **1.** From Cisco Unified CM IM and Presence Administration, choose **Diagnostics** > **System Troubleshooter**. **2.** Verify that no errors appear in the **External Database Troubleshooter** section.
Step 4	Restart the Cisco XCP Router on all IM and Presence Service cluster nodes: **1.** From Cisco Unified IM and Presence Serviceability, choose **Tools** > **Control Center - Network Services**. **2.** From the **Server** menu, select an IM and Presence Service node and click **Go**. **3.** Under **IM and Presence Services**, select **Cisco XCP Router**, and click **Restart**.
Step 5	Turn off services that depend on the external database: **1.** From Cisco Unified IM and Presence Serviceability, choose **Tools** > **Control Center - Feature Services**. **2.** From the **Server** menu, select an IM and Presence node and click **Go**. **3.** Under **IM and Presence Services**, select the following services:. Cisco XCP Text Conference Manager Cisco XCP File Transfer Manager Cisco XCP Message Archiver **4.** Click **Stop**.

Step	Task
Step 6	Run the following script to migrate data from the old database to the new database `MSSQL_migrate_script.sql`. **Note** Contact Cisco TAC to obtain a copy of this script
Step 7	Run the System Troubleshooter to confirm that there are no errors with the new database. **1.** From Cisco Unified CM IM and Presence Administration, choose **Diagnostics** > **System Troubleshooter**. **2.** Verify that no errors appear in the **External Database Troubleshooter** section.
Step 8	Start the services that you stopped previously. **1.** From Cisco Unified IM and Presence Serviceability, choose **Tools** > **Control Center - Feature Services**. **2.** From the **Server** menu, select an IM and Presence node and click **Go**. **3.** Under **IM and Presence Services**, select the following services: Cisco XCP Text Conference Manager Cisco XCP File Transfer Manager Cisco XCP Message Archiver **4.** Click **Start**.
Step 9	Confirm that the external database is running and that all chat rooms are visible from a Cisco Jabber client. Delete the old database only after you're confident that the new database is working.

Upgrade Database Schema from IM and Presence Release 11.5(1) and Above

If you have Microsoft SQL database deployed as an external database with the IM and Presence Service, choose either of the following scenarios to upgrade the database schema.

Table 2: MSSQL Database Schema Upgrade Scenarios

Scenario	Procedure
Upgrade from IM and Presence Service 11.5(1), 11.5(1)SU1, or 11.5(1)SU2 release	For more information on how to upgrade your MSSQL database, see the 'Database Migration Required for Upgrades with Microsoft SQL Server' section in the Database Setup Guide for the IM and Presence Service. This makes the necessary changes to the column types from TEXT to nvarchar(MAX).

Scenario	Procedure
Upgrade from IM and Presence Service 11.5(1)SU3 or later	The MSSQL database connected to the IM and Presence Service Server is upgraded automatically during IM and Presence Service upgrade. This makes the necessary changes to the column types from nvarchar(4000) to nvarchar(MAX). **Note** If you want to trigger an upgrade manually for any reason, such as to connect to an older database with column type as nvarchar(4000), the following actions trigger and upgrade the database by changing the column type to nvarchar(MAX): • Restarting Cisco XCP Config Manager followed by restarting Cisco XCP Router service; or • During schema verification of the external database—when you assign the database to Text Conferencing (TC), Message Archiver (MA) or Managed File transfer (MFT) services, and reload the **External Database Settings** page. (From the Cisco Unified CM IM and Presence Administration user interface, choose **Messaging** > **External Server Setup** > **External Databases**, and then find and select the database to load the **External Database Settings** page.)