ENTRÉ

INSTALLATION, SETUP, AND SERVER MAINTENANCE GUIDE

A Setup Guide for IT Teams and Administrators

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PRE-INSTALLATION TASKS

Before installing Entré, review the following pre-installation checklist. Completing these tasks before installation reduces setup time as well as the likelihood that you'll need to troubleshoot configuration issues after Entré is installed. See LT-1833 Entré and Entré NOC Pre-Installation Checklist for a complete pre-installation checklist.

The Pre-Installation tasks include the following:

1. Determine the Server Architecture

2. Configure Microsoft SQL Server

3. Configure Firewall Settings

4. Configure Java Settings

5. Review Data Flow

6. Review Networking Basics

For information about Entré compatibility with specific versions of XR Series or TMSentry firmware, refer to LT-2233 Entré Version and Panel Feature Compatibility Guide.

For information about Entré compatibility with Remote Link™, refer to the Comparison Chart in LT-2497 Entré Migrations Guide.

Note: SQL Express is only supported with Entré Light. It will be necessary to migrate to SQL Enterprise when upgrading to Entré Business or higher. It is the dealer's responsibility to ensure the customer has a SQL DBA or an IT department to support SQL. DMP Tech Support does not support SQL.

① Determine the Server Architecture

These specifications were quoted by Dell and Microsoft infrastructure specialists and accounts for a standard 5 year life span and an expected 20% growth factor without further improvements needed to the server software.

🛡️ **PANELS:** 1 - 4

🚪 **DOORS:** 16 max.

💬 **EVENTS:** 1,000 or less per day

👤 **USER CHANGES:** 25 or less per day

Entré App Server,
Microsoft SQL Database/App Server,
& Apache Tomcat Web Server

Apache Tomcat Web Server is only needed if using the Web Client

Full Client   Web Client
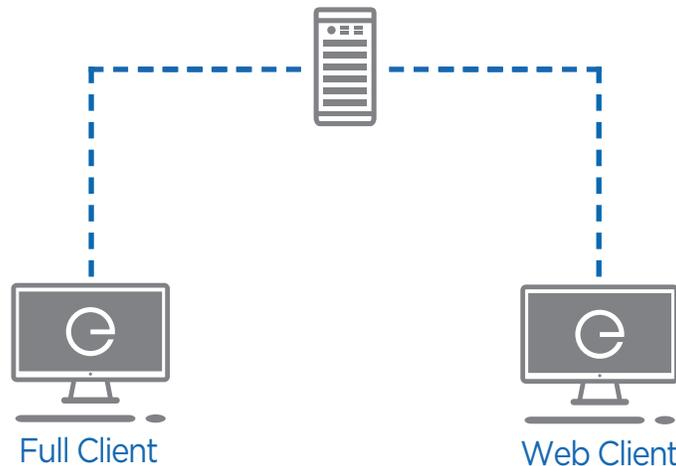
Entré App Server, Microsoft SQL Database/App Server, & Apache Tomcat Web Server *(per 30 users)*

Processors – 2 (4-cores each)

4 cores should be allocated for SQL use.

Hard Drive

The operating system, system drive, SQL data drive, and log drive are all located on separate physical disks.

‣ OS Drive - 2
‣ 73 GB, 6 Gbps, RAID 1
‣ Data Drives - 2
‣ 146 GB, 6 Gbps, RAID 1
‣ Log and TempDB Drives - 2
‣ 73 GB, 6 Gbps, RAID 1

RAM – 64 GB RAM

16 GB dedicated to Entré Wrapper, 16 GB dedicated to Apache Tomcat, and 24 GB dedicated to Microsoft SQL

Supported Versions

Windows Server – All Microsoft Supported Server Operating Systems.

SQL – All Microsoft Supported SQL Server Operating Systems.

Apache Tomcat – 10

Java – 17

Windows Workstation – 10

See Whitepaper: LT-2582 Spotlight on Disaster Recovery

Full Client Specifications

Core i7 Series Processor or equivalent

32 GB RAM (16 Minimum)

250 GB HDD

Requirements: All servers require a Gigabit Ethernet Adapter or better.

System Requirements: These allocations leave at least 8GB reserved for Windows OS consumption. If Web Clients are not to be utilized, then Apache resources can be split between SQL and Entre, or removed from the build. We recommend the same base configurations on all physical or virtual builds. In Virtual Environments, it is recommended that the customer's IT team monitor performance for a 3-6 month time-frame to establish a baseline. Resources can be reviewed for increase or decrease at that time based on individual customer use cases.

PANELS: 5 - 24

DOORS: 96 max.

EVENTS: 1,000 - 5,000 per day

USER CHANGES: 25 - 100 per day

Entré App Server,
Microsoft SQL Database/App Server,
& Apache Tomcat Web Server

Apache Tomcat Web Server is only needed if using the Web Client

Full Client

Web Client

Entré App Server, Microsoft SQL Database/App Server, & Apache Tomcat Web Server *(per 30 users)*

Processors – 2 (4-cores each)

4 cores should be allocated for SQL use.

Hard Drive

The operating system, system drive, SQL data drive, and log drive are all located on separate physical disks.

- **TempDB Drive** - 2 (146 GB, 6 Gbps, RAID 0)
- **Data Drives** - 4 (146 GB, 6 Gbps, RAID 6)
- **Log Drives** - 2 (146 GB, 6 Gbps, RAID 1)

RAM – 64 GB RAM

16 GB dedicated to Entré Wrapper, 16 GB dedicated to Apache Tomcat, and 24 GB dedicated to Microsoft SQL

Supported Versions

Windows Server – All Microsoft Supported Server Operating Systems.

SQL – All Microsoft Supported SQL Server Operating Systems.

Apache Tomcat – 10

Java – 17

Windows Workstation – 10

See Whitepaper: LT-2582 Spotlight on Disaster Recovery

Full Client Specifications

Core i7 Series Processor or equivalent

32 GB RAM (16 Minimum)

250 GB HDD

Requirements: All servers require a Gigabit Ethernet Adapter or better.

System Requirements: These allocations leave at least 8GB reserved for Windows OS consumption. If Web Clients are not to be utilized, then Apache resources can be split between SQL and Entre, or removed from the build. We recommend the same base configurations on all physical or virtual builds. In Virtual Environments, it is recommended that the customer's IT team monitor performance for a 3-6 month time-frame to establish a baseline. Resources can be reviewed for increase or decrease at that time based on individual customer use cases.

🛡 **PANELS: 25 - 100**

🚪 **DOORS: 400 max.**

💬 **EVENTS: 5,000 - 10,000 per day**

👤 **USER CHANGES: 100 - 200 per day**
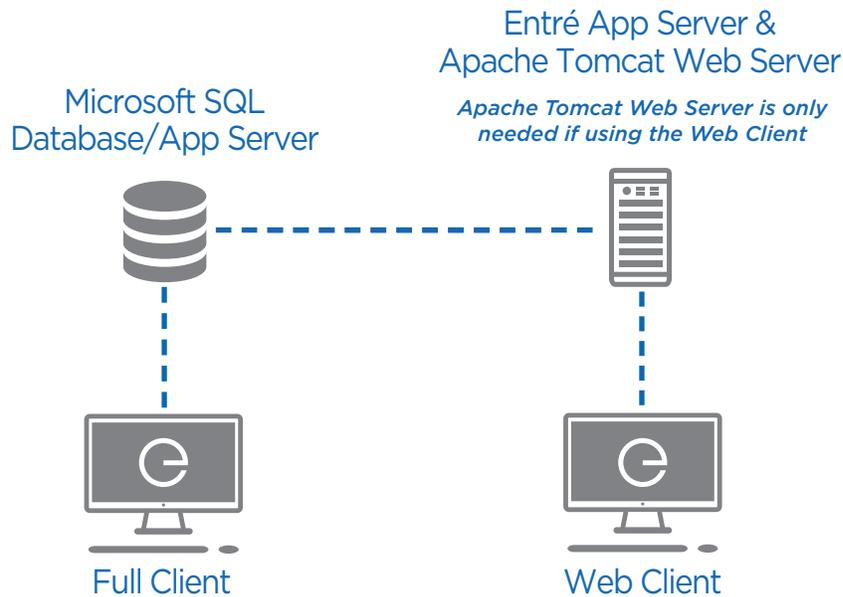
Microsoft SQL
Database/App Server

Entré App Server &
Apache Tomcat Web Server

*Apache Tomcat Web Server is only
needed if using the Web Client*

Full Client

Web Client

Entré App Server &
Apache Tomcat Web Server *(per 30 users)*

Processors – 2 (4-cores each)

Hard Drives – 3 (146 GB, RAID 5)

RAM – 128 GB RAM (40 GB dedicated to Java, 60 GB dedicated to Apache Tomcat)

Microsoft SQL Database Server

Processors – 2 (4-cores each)

All but 2 cores should be allocated to SQL.

Hard Drive

The operating system, system drive, SQL data drive, and log drive are all located on separate physical disks.

‣ **TempDB Drive** - 2 (146 GB, 6 Gbps, RAID 0)
‣ **Data Drives** - 4 (146 GB, 6 Gbps, RAID 6)
‣ **Log Drives** - 2 (146 GB, 6 Gbps, RAID 1)

RAM – 64 GB RAM

64 GB dedicated to Entré Wrapper, 56 GB dedicated to Apache Tomcat, and 56 GB dedicated to Microsoft SQL

Supported Versions

Windows Server – All Microsoft Supported Server Operating Systems.

SQL – All Microsoft Supported SQL Server Operating Systems.

Apache Tomcat – 10

Java – 17

Windows Workstation – 10

See Whitepaper: LT-2582 Spotlight on Disaster Recovery

Full Client Specifications

Core i7 Series Processor or equivalent

32 GB RAM (16 Minimum)

250 GB HDD

Requirements: All servers require a Gigabit Ethernet Adapter or better.

System Requirements: These allocations leave at least 8GB reserved for Windows OS consumption. If Web Clients are not to be utilized, then Apache resources can be split between SQL and Entre, or removed from the build. We recommend the same base configurations on all physical or virtual builds. In Virtual Environments, it is recommended that the customer's IT team monitor performance for a 3-6 month time-frame to establish a baseline. Resources can be reviewed for increase or decrease at that time based on individual customer use cases.

PANELS: 101 - 500

DOORS: 2,000 max.

EVENTS: 10,000 - 50,000 per day

USER CHANGES: 200 - 500 per day

Microsoft SQL
Database Server

Entré App
Server

Apache Tomcat
Web Client Server
*Only needed if using
the Web Client*

Full Client

Web Client
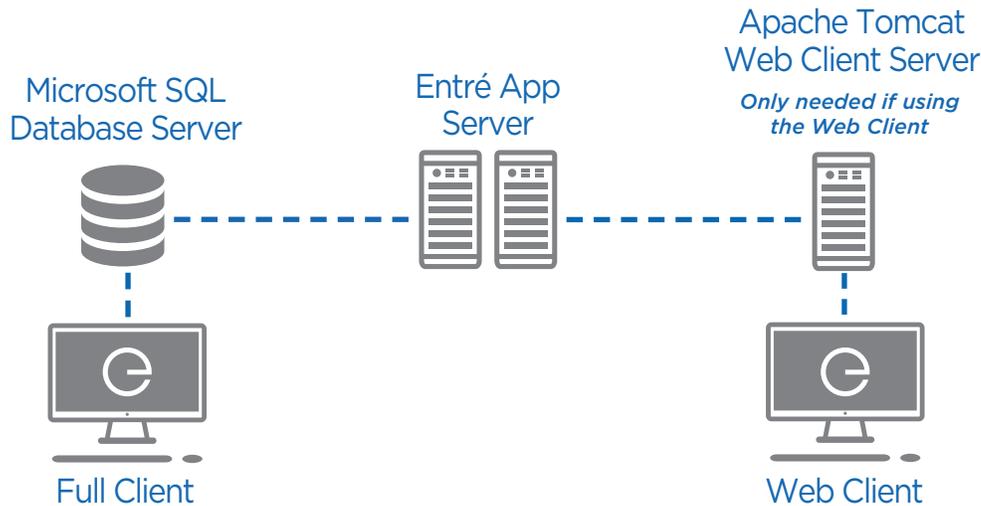
Entré App Server

Processors – 2 (4-cores each)

Hard Drives – 3 (146 GB, RAID 5)

RAM – 64 GB RAM (50 GB dedicated to Java)

Microsoft SQL Database Server

Processors – 2 (4-cores each)

All but 2 cores should be allocated to SQL.

Hard Drive

The operating system, primary file system drive, SQL data drive, and log drives are all located on physical 15K RPM SAS drives.

- ‣ **TempDB Drives** - 2 (146 GB, RAID 0)
- ‣ **Data Drives** - 4 (300 GB, RAID 10)
- ‣ **Log Drives** - 3 (300 GB, RAID 5)

RAM – 128 GB RAM

56 GB dedicated to Entré Wrapper, 88 GB dedicated to Apache Tomcat, and 120 GB dedicated to Microsoft SQL

Apache Tomcat Web Client Server *(per 100 users)*

Processor – 1 (6-cores each)

Hard Drives – 3 (146 GB, RAID 5)

RAM – 96 GB RAM

Supported Versions

Windows Server – All Microsoft Supported Server Operating Systems.

SQL – All Microsoft Supported SQL Server Operating Systems.

Apache Tomcat - 10

Java – 17

Windows Workstation – 10

See Whitepaper: LT-2582 Spotlight on Disaster Recovery

Full Client Specifications

Core i7 Series Processor or equivalent

32 GB RAM (16 Minimum)

250 GB HDD

Requirements: All servers require a Gigabit Ethernet Adapter or better.

System Requirements: These allocations leave at least 8GB reserved for Windows OS consumption. If Web Clients are not to be utilized, then Apache resources can be split between SQL and Entre, or removed from the build. We recommend the same base configurations on all physical or virtual builds. In Virtual Environments, it is recommended that the customer's IT team monitor performance for a 3-6 month time-frame to establish a baseline. Resources can be reviewed for increase or decrease at that time based on individual customer use cases.

PANELS: 501 - 1,000
DOORS: 4,000 max.
EVENTS: 50,000 - 100,000 per day
USER CHANGES: 500 - 1,500 per day

Microsoft SQL
Database Server

Entré App
Server

Apache Tomcat
Web Client Server

*Only needed if using
the Web Client.*

Full Client

Web Client

Entré App Server

Processors – 2 (6-cores each)

Hard Drives – 4 (146 GB, RAID 6)

RAM – 128 GB RAM (120 GB dedicated to Java)

Microsoft SQL Database Server

Processors – 2 (6-cores each)

All but 2 cores should be allocated to SQL.

Hard Drive

The operating system, primary file system drive, SQL data drive, and log drives are all located on physical 15K RPM SAS drives.

‣ **TempDB Drives** - 2 (146 GB, RAID 0)
‣ **Data Drives** - 4 (600 GB, RAID 10)
‣ **Log Drives** - 4 (300 GB, RAID 6)

RAM – 128 GB RAM

120 GB dedicated to Entré Wrapper, 120 GB dedicated to Apache Tomcat, and 120 GB dedicated to Microsoft SQL

Apache Tomcat Web Client Server *(per 100 users)*

Processor – 1 (8-cores)

Hard Drives – 4 (146 GB, RAID 6)

RAM – 128 GB RAM

Full Client Specifications

Core i7 Series Processor or equivalent

32 GB RAM (16 Minimum)

250 GB HDD

Supported Versions

Windows Server – All Microsoft Supported Server Operating Systems.

SQL – All Microsoft Supported SQL Server Operating Systems.

Apache Tomcat - 10

Java – 17

Windows Workstation – 10

See Whitepaper: LT-2582 Spotlight on Disaster Recovery

Requirements: All servers require a Gigabit Ethernet Adapter or better.

System Requirements: These allocations leave at least 8GB reserved for Windows OS consumption. If Web Clients are not to be utilized, then Apache resources can be split between SQL and Entre, or removed from the build. We recommend the same base configurations on all physical or virtual builds. In Virtual Environments, it is recommended that the customer's IT team monitor performance for a 3-6 month time-frame to establish a baseline. Resources can be reviewed for increase or decrease at that time based on individual customer use cases.

PANELS: 1,001 - 2,000
DOORS: 8,000 max.
EVENTS: 100,000 - 200,000 per day
USER CHANGES: 1,500 - 3,000 per day
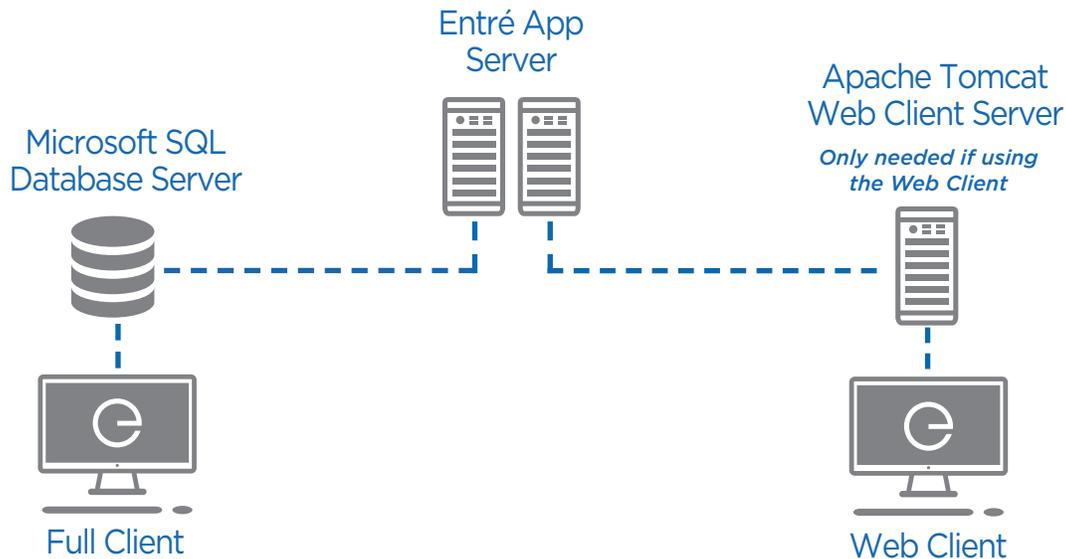
Microsoft SQL
Database Server

Entré App
Server

Apache Tomcat
Web Client Server

*Only needed if using
the Web Client*

Full Client

Web Client

Entré App Server

Processors – 2 (6-cores each)

Hard Drives – 4 (146 GB, RAID 6)

RAM – 128 GB RAM (120 GB dedicated to Java)

Microsoft SQL Database Server

Processors – 4 (6-cores each)

All but 2 cores should be allocated to SQL.

Hard Drive

The operating system, primary file system drive, SQL data drive, and log drives are all located on physical 15K RPM SAS drives.

- ‣ **TempDB Drives** - 2 (146 GB, RAID 0)
- ‣ **Data Drives** - 6 (600 GB, RAID 10)
- ‣ **Log Drives** - 4 (300 GB, RAID 6)

RAM – 256 GB RAM (248 GB dedicated to Microsoft SQL)

120 GB dedicated to Entré Wrapper, 120 GB dedicated to Apache Tomcat, and 248 GB dedicated to Microsoft SQL

Apache Tomcat Web Client Server *(per 100 users)*

Processors – 2 (4-cores each)

Hard Drives – 4 (146 GB, RAID 6)

RAM – 128 GB RAM (120 GB dedicated to Java)

Supported Versions

Windows Server – All Microsoft Supported Server Operating Systems.

SQL – All Microsoft Supported SQL Server Operating Systems.

Apache Tomcat - 10

Java – 17

Windows Workstation – 10

See Whitepaper: LT-2582 Spotlight on Disaster Recovery

Full Client Specifications

Core i7 Series Processor or equivalent

32 GB RAM (16 Minimum)

250 GB HDD

Requirements: All servers require a Gigabit Ethernet Adapter or better.

System Requirements: These allocations leave at least 8GB reserved for Windows OS consumption. If Web Clients are not to be utilized, then Apache resources can be split between SQL and Entre, or removed from the build. We recommend the same base configurations on all physical or virtual builds. In Virtual Environments, it is recommended that the customer's IT team monitor performance for a 3-6 month time-frame to establish a baseline. Resources can be reviewed for increase or decrease at that time based on individual customer use cases.

*For more than 5,000 panels, 500,000 events per day, or 10,000 user changes, contact DMP Inside Sales for direct assistance in architecture design at 1-877-757-4367.

Entré App
Server

Microsoft SQL
Database Server

Apache Tomcat
Web Client Server

*Only needed if using
the Web Client*

Full Client

Web Client
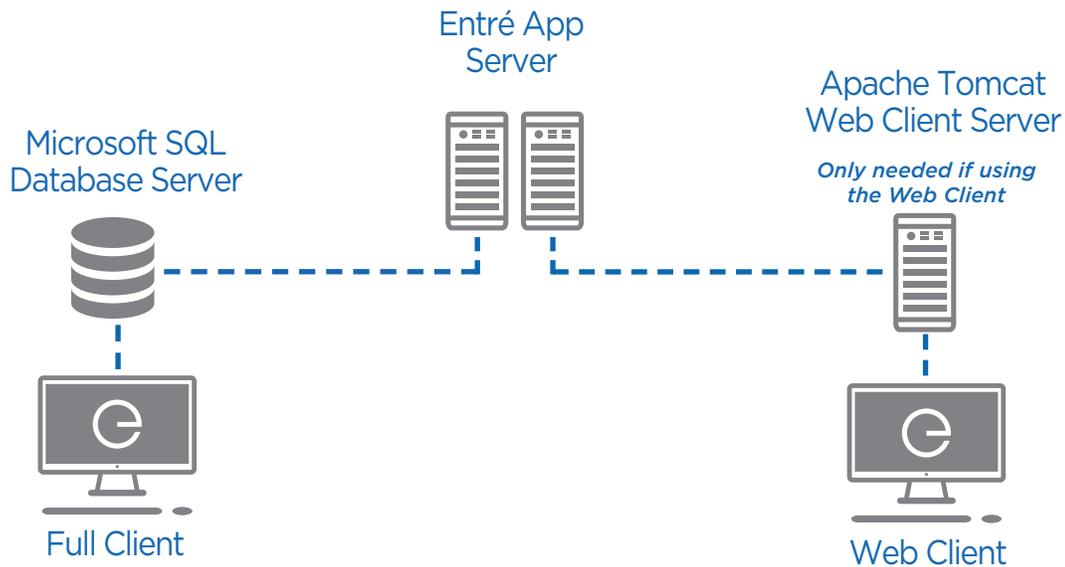
Entré App Server

Processors – 2 (8-cores each)

Hard Drives – 4 (146 GB, RAID 6)

RAM – 128 GB RAM (120 GB dedicated to Java)

Microsoft SQL Database Server

Processors – 4 (8-cores each)

All but 2 cores should be allocated to SQL.

Hard Drive

The operating system, primary file system drive, SQL data drive, and log drives are all located on physical 15K RPM SAS drives.

‣ **TempDB Drives** - 2 (146 GB, RAID 0)
‣ **Data Drives** - 6 (600 GB, RAID 10)
‣ **Log Drives** - 4 (300 GB, RAID 6)

RAM – 384 GB RAM

120 GB dedicated to Entré Wrapper, 120 GB dedicated to Apache Tomcat, and 372 GB dedicated to Microsoft SQL

Apache Tomcat Web Client Server *(per 100 users)*

Processors – 2 (6-cores each)

Hard Drives – 4 (146 GB, RAID 6)

RAM – 128 GB RAM

Supported Versions

Windows Server – All Microsoft Supported Server Operating Systems.

SQL – All Microsoft Supported SQL Server Operating Systems.

Apache Tomcat - 10

Java – 17

Windows Workstation – 10

See Whitepaper: LT-2582 Spotlight on Disaster Recovery

Full Client Specifications

Core i7 Series Processor or equivalent

32 GB RAM (16 Minimum)

250 GB HDD

Requirements: All servers require a Gigabit Ethernet Adapter or better.

System Requirements: These allocations leave at least 8GB reserved for Windows OS consumption. If Web Clients are not to be utilized, then Apache resources can be split between SQL and Entre, or removed from the build. We recommend the same base configurations on all physical or virtual builds. In Virtual Environments, it is recommended that the customer's IT team monitor performance for a 3-6 month time-frame to establish a baseline. Resources can be reviewed for increase or decrease at that time based on individual customer use cases.

② Configure Microsoft SQL Server

📝 **Note:** Links are not DMP links and may not be current.

Ensure Microsoft SQL Server 2016 or later has been installed. For newer environments, DMP recommends installing Microsoft SQL 2019 or higher. The following link directs you to the SQL Server information page, which includes a comparison diagram to help you determine the appropriate version for your server and organization:

‣ Microsoft SQL Server Editions

Verify that you have configured SQL Server to use Named Pipes and TCP/IP port 1433 for communication. For more information, refer to the following Microsoft SQL documentation:

‣ Server Network Configuration

‣ Enable or Disable a Server Network Protocol

‣ Configure a Server to Listen on a Specific TCP Port

Make sure that the correct firewall ports are open for Microsoft SQL Server if your machine has Windows Firewall running.

For more information, refer to the following Microsoft SQL documentation:

‣ Configure a Windows Firewall for Database Engine Access

Key Recommended Settings

Recovery Model - Simple
The Simple Recovery model covers all data stored in the Entré database. DMP recommends this setting because it will not harm any functionality.

MaxDOP - 1
This setting is consistently the best option in testing. DBA's can adjust this as needed for performance. Refer to the Parallelism section in this document for more information.

Allow Snapshot Isolation - True
This option allows for performance increase during heavy read/write functions specific to Entré. This works in conjunction with the **hibernate.connection.isolation=1** line in your **hibernate.properties** file. Always ensure that line exists in your hibernate file when this option is enabled in the database.

Auto Close - False
This option should never be enabled on any production database. Always ensure this setting is **never** set to TRUE.

Entré Application Service

The Entré application service is a program that runs in the background at the operating system level and listens for events coming from control panels. It classifies the events and then stores them in the SQL database. The application service automatically starts each time the operating system is restarted.

Entré Standard Client

The Entré standard client is a program or graphical user interface (GUI) written in Java that makes a simultaneous TCP connection to the Entré Application Service and the SQL database. The client requests and displays, in a graphical format, the data that is parsed by the service and stored in the database. Through the client GUI, the operator can make changes to personnel records, user codes, schedules, holidays, and other information stored in the SQL database. The operator can then run reports against the database that can be displayed in the software GUI or saved in various output formats.

You can install the standard client on as many machines as you wish, but you can only maintain the number of simultaneous connections listed in the permanent license.

Entré Web Client

The Entré web client is an Apache Tomcat-based browser version of the Entré Standard Client. Apache Tomcat Web Server software must be installed and configured as part of the Entré installation and licensed on a per client basis before it will function.

Note: Video integrations and badge designer do not function from the Entré Web Client.

Database Information for Lite and Business Users

What is a Database?

A database is a collection of information organized to provide efficient retrieval. There are physical and electronic databases. The collected information could be in any number of formats (electronic, printed, graphic, audio, statistical, combinations).

A database could be as simple as an alphabetical arrangement of names in an address book or as complex as a database that provides information in a combination of formats.

How is a Database Organized?

Understanding how a database is organized can help you retrieve information more efficiently.

Information about each item in a database is called a *record*.

Elements of an individual record are called *fields*. Fields can be used as points of access when searching a database.

Try visualizing a record in an electronic database as being part of a table. Each column in the table represents the fields and each row represents the individual record. The table below represents what an electronic database of students in a class might look like:

Last Name	First Name	Class	Hometown	Birth Month
Smith	John	Freshman	Macon	August
Turner	Evelyn	Freshman	Brunswick	April
Arndale	Carrie	Sophomore	Atlanta	September
Zwemke	Jason	Freshman	Cartersville	May
Lane	Penny	Sophomore	Decatur	September

Database Authentication Methods

What is the difference between Windows authentication and SQL authentication? Windows authentication means the account is located in the active directory for the domain. Windows authentication is a convenient way to log in to a SQL server instance without typing a user name and password every time. The user will set their account and password one time and in each instance after, the active directory will sign them in after checking to make sure the user account is active and what permissions the account has. SQL authentication means the account is located in the SQL server and has no affiliation with the domain. SQL authentication requires the user create an account for each SQL server instance and update each instance when there is a change to the account. SQL authentication requires more user intervention than Windows authentication does, but there are more opportunities to customize accounts and policies.

Entré Client connections use a remote TCP connection. This means that any end user-supplied SQL server must be configured to allow remote TCP connections. The login name provided to Entré must possess database owner-level access so that the Entré Application Service can read to and write from the VXDB database that is created when the software is installed.

Server Instances

A SQL Server instance is a complete SQL server. You can install many instances on a machine, but you can have only one default instance. A SQL Server instance has its own copy of the server files, databases, and security credentials.

Entré can be installed using either the default instance, or you can specify an instance during the installation. This instance name and a SQL login with server administrator permissions are used to create the TCP link to the SQL database in which the default VXDB Entré Database is created.

Management Tools for SQL

If there is already an Enterprise-level SQL Server, then the site database administrator will have access to the SQL Database Management Studio. If you don't know which level of SQL you need to get, consult your Microsoft certified provider or visit the link below.

‣ MSDN.Microsoft.com/en-us/library/ms365247.aspx

③ Configure Firewall Settings

Verify that the correct firewall ports are open for Entré. The ports that DMP panels use for communication with Entré are configured in the panel Remote Options menu. The following is a list of default ports:

- ‣ App Server Ports—2001, 2011, 1236, 1237, 9090, and 9091
- ‣ Microsoft SQL Database Port—1433
- ‣ Workstation and Web Server Ports—1236, 1237, 8080, and 443

Verify that your antivirus software and any firewall applications or devices have exceptions for Entré, Java, SQL, and their respective ports. For more information about configuring Windows Firewall, refer to the following Microsoft documentation:

- ‣ Create an Inbound Port Rule
- ‣ Create an Outbound Port Rule
- ‣ Advanced Firewall Administration with PowerShell

Entré uses network ports for communications between Entré Client Software, the Entré Application Server, and the SQL database. Therefore, certain ports must be open bidirectionally in the operating system and network firewalls. Each standard client machine will need to access both the SQL Server and the Entré Server on the host machine. See the *"Web Client"* and *"Admin Workstation"* Data Flow sections of this document for more information on which ports should be used.

Some installations may require other system ports to be opened, but the ports shown in the data flows are the required ports for most common installations.

Configuring the operating system to allow the installer to operate might be required before starting the installation. Entré software does not make any changes to the system registry, but the installer must have full local administrator read and write permissions to complete the installation.

The Entré installer does not set or override firewall permissions, or override domain policies. Software installations that error out, or fail to create log files during the installation, are commonly seen on machines that are part of a domain with a policy restricting the installation of software. Simply right-clicking on the Entré installer and running it as "Administrator" by entering the local administrator password will usually resolve this issue.

The Entré Application Service uses the information specified during the installation process to connect to the database and add the required tables.

When installing Entré and interfacing it with an existing SQL database, you need to contact the site IT staff to verify that the operating system is configured properly for SQL. DMP Tech Support is not allowed to make changes to domain policy or firewall configurations. It is the responsibility of the dealer technician to ensure that the site PC is configured properly before installing Entré.

Using the Entré Log Files

Entré's log files are located in the DMP\Entré\log\ directory. The four log files that are part of the Entré system are shown and described below.
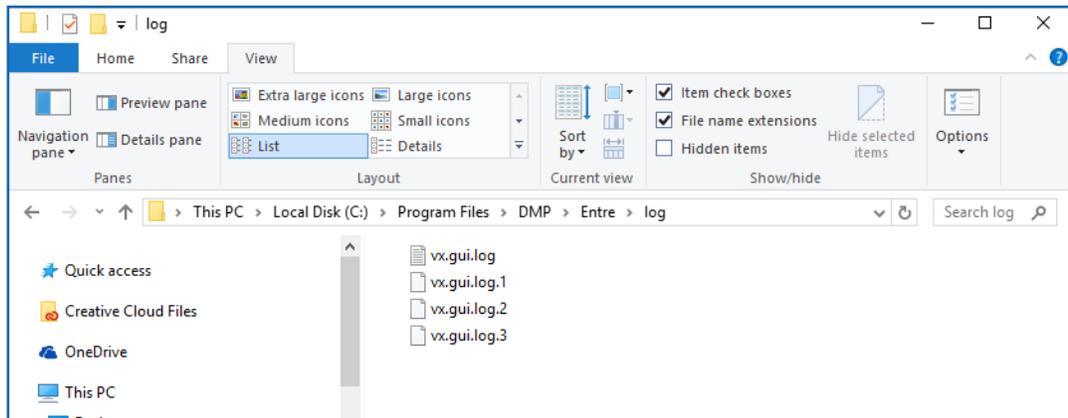
- **vx.adminapp.log -** Logs the operation of the installation or upgrade process.
- **vx.gui.log -** Details the operations of the Java based standard client or Apache Tomcat based web client software connection to the service.
- **vx.wrapper.log -** Logs the actual Entré Application Service connection with the operating system.
- **vx.appserver.log -** Details the running operations of the Entré Application Service. This is the most useful log to certified installation technicians.

These are two examples of errors seen in *vx.appserver.log* log files. These two errors are an indication that the TCP/IP ports that the operating system uses to communicate with the SQL server are not open so Java is not able to talk to the database.

- **[2021-03-15 15:11:22,046] WARN -** SQL Error: 0, SQLState: HY000
- **[2021-03-15 15:11:22,046] ERROR -** Unable to get information from SQL Server:164.51.192.16.
- **[2021-03-15 15:11:22,046] WARN -** net.sf.hibernate.exception.GenericJDBCException:Cannot open connection net.sf.hibernate.exception.GenericJDBCException: Cannot open Connection

Note: If you do not see a *vx.appserver.log* then you know the operating system did not allow the service to be installed. Therefore, there is no service in place to make error logs.

Windows operating systems with a default configuration do not allow Microsoft SQL Server to communicate internally without making several port adjustments.

Using the ODBC Data Source Administrator Utility

You can check to see if the required ports are open for SQL to communicate with the operating system by using the Open Database Connectivity (ODBC) Data Source Administrator Utility. It is included as one of the basic windows system tools. Obtain the services of an IT professional for these advanced diagnostic procedures.

1. Select **Run** from the **Start** menu and run the command **odbcad32**.

2. Select **Add** and you will be presented with a list of drivers to choose from.

3. Scroll to the bottom and select **SQL Server** from the list. Select **Finish**.

4. Enter a **Name** and **Description** and then open the **Sever** drop-down list and your computer will query the network for a list of existing SQL servers.

    Note: It is important to let the tool query the network for the list of existing servers. If this list does not appear, you need to verify that the SQL Browser Service is running and set to automatically start when the SQL service starts. The SQL Browser Service is what Entré relies on to resolve the localhost machine name to the system-assigned IP address.

5. Select the computer's machine name from the list and then select **Next**.

6. Select **With SQL Server authentication using a login ID and password entered by the end user**.

7. Enter the login name and password that you entered in during the Entré installer and then select **Next**.

8. The next screens can be left at their defaults. If you have made it this far then your login and password are correct for the SQL instance that you selected and you can continue on with your connection test to see if the required internal ports are open.

9. Select the **Finish** and you will be presented with a summary of the data source connection information.

10. Select **Test Data Source** and a series of connection tests will be ran on the ports of your computer for the SQL instance.

    Note: If the test is not successful, you will need to have an IT technician or SQL Database Administrator (DBA) verify that the SQL server is properly configured for remote connections via TCP/IP and the proper ports are open for the operating system being used.

Opening Firewall Ports for SQL

The "Configuring the Windows Firewall to Allow SQL Server Access Books Online" link contains the information to configure Windows Firewall for each one of the SQL Server services.

The link below will take you to a tool that Microsoft has supplied to assist you in configuring the Windows Server operating system to allow SQL to communicate internally.

‣ https://docs.microsoft.com/en-us/sql/sql-server/install/configure-the-windows-firewall-to-allow-sql-server-access?view=sql-server-ver15

④ Configure Java Settings

Entré does not have Java built in and requires users download Java 17 or an OpenJDK 17 alternative.

To set JAVA_HOME, do the following:

1. Select the **Windows Key** and search for **View Advanced System Settings**.

2. On the **Advanced** tab, select **Environment Variables**.

3. Edit JAVA_HOME to point to where the JDK software is located. For example, **C:\Program Files\Java\jdk17.0.6_10**.
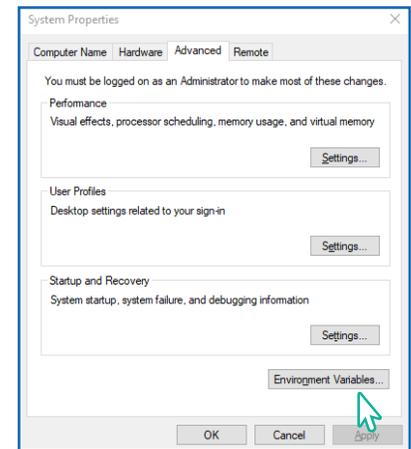
Configure and Optimize Entré Application Memory

Once Entré is installed, you will need to allocate the memory on the machine to be usable by the application. This is done by editing the **wrapper.conf** file located in the DMP\Entre\main directory.

Find the following lines:

- ‣ Initial Java Heap Size (in MB)
  wrapper.java.initmemory=4096

- ‣ Maximum Java Heap Size (in MB)
  wrapper.java.maxmemory=8192

Edit the **maxmemory** to be a value approved by the server administrator.

Example: The server has 64 GB of memory and is dedicated to being the Entré application server. Leave 6 GB of RAM for Windows Server OS, leaving 58 GB to be allocated in the application. Alter the line to be **wrapper.java.maxmemory=59392** (58 x 1024).

Settings to take into account:

- ‣ Total machine memory

- ‣ Is SQL on the same machine and memory already allocated to SQL per Architecture Recommendations and Microsoft Best Practices?

- ‣ Is Apache Tomcat on the same machine and memory allocated per Architecture Recommendations and Apache Tomcat recommended configurations?

Consider all applications in use and memory allocations before assigning final values to this file.

⑤ Review Data Flow

Web Client

Microsoft SQL
Database/App Server

Network Speed: 1 Gbps
Protocol: TCP, TLS optional
Default Port: 1433

Entré Web Server

Network Speed: 1 Gbps
Protocol: TCP, TLS optional
Default Ports: 1236, 1237

Network Speed: 10 Gbps
Protocol: TCP, TLS optional
Default Port: 1433

Entré App Server

Network Speed: > 1 Mbps
Protocol: TCP, TLS optional
Default Ports: 80 or 443

Network Speed: > 512 kbps
Protocol: TCP
To App Server Port: 2001
To Panels Port: 2011

Web Client

(browser based)

Panels

XR 550

The Entré Web Server reads data from the Microsoft SQL Database/App Server.

When a change is made, the Entré Web Server changes the data.

A notification of the change is sent to the Entré App Server.

The Entré App Server notifies all Web Clients and the Entré Web Servers of the change.

The Entré App Server pulls the change from the Microsoft SQL Database/App Server and builds an audit record.

The Entré App Server sends the change to the Panels.

Admin Workstation

Admin Workstation

Network Speed: 1 Gbps
Protocol: TCP, TLS optional
Default Port: 1433

**Microsoft SQL
Database/App Server**

Network Speed: 10 Gbps
Protocol: TCP, TLS optional
Default Port: 1433

Entré App Server

Network Speed: 1 Gbps
Protocol: TCP, TLS optional
Default Ports: 1236, 1237

Network Speed: > 512 kbps
Protocol: TCP
To App Server Port: 2001
To Panels Port: 2011

Panels
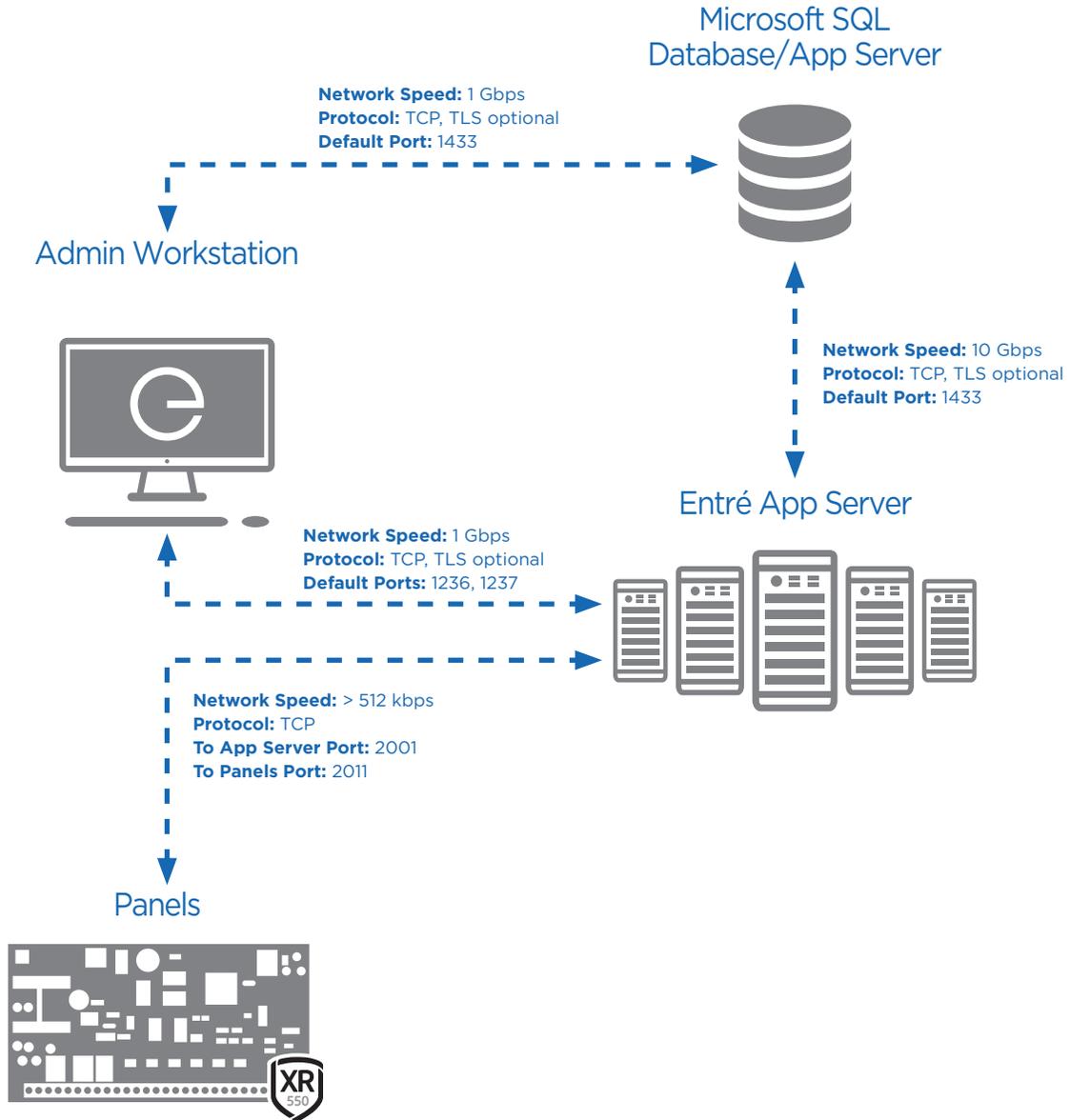
The Admin Workstation reads data from the Microsoft SQL Database/App Server.

When a change is made, the Admin Workstation changes the data.

A notification of the change is sent to the Entré App Server.

The Entré App Server notifies all workstations of the change.

The Entré App Server pulls the change from the Microsoft SQL Database/App Server and builds an audit record.

The Entré App Server sends the change to the panels.

NOC Multiple Server

Panels

Entré App Server

Network Speed: > 512 kbps
Protocol: TCP
Default Port: 2001

Network Speed: 1 Gbps
Protocol: TCP, TLS optional
Default Ports: 1236, 1237

Network Speed: 1 Gbps
Protocol: TCP, TLS optional
Default Ports: 1236, 1237

Web Client

Apache Tomcat Web Client Server

Network Speed: > 1 Mbps
Protocol: TCP, TLS optional
Default Port: 80

Network Speed: 1 Gbps
Protocol: TCP, TLS optional
Default Port: 1433

Full Client

Network Speed: 1 Gbps
Protocol: TCP, TLS optional
Default Port: 1433

Microsoft SQL Database Server

Network Speed: 10 Gbps
Protocol: TCP, TLS optional
Default Port: 1433

The Apache Tomcat Web Client Server and the Full Client read data from the Microsoft SQL Database/App Server.

When a change is made, the Apache Tomcat Web Client Server or the Full Client change the data.

A notification of the change is sent to the Entré App Server.

The Entré App Server notifies the Apache Tomcat Web Client Server and the Full Client of the change. The servers notify their respective clients of the change.

The Entré App Server pulls the change from the Microsoft SQL Database/App Server and builds an audit record.

The Entré App Server sends the change to the Panels.

Ports

- ‣ **2001** – The port the panel uses to send events to Entré. (Panel to Entré)

- ‣ **2011** – The port the panel uses to receive commands from Entré. (Entré to panel)

- ‣ **1433** – The Microsoft SQL database port.

- ‣ **443** – The Web Server port for SSL configuration.

- ‣ **8080** – The Web Server port for incoming and outgoing information.

- ‣ **1236 & 1237** – The client ports.

- ‣ **9090 & 9091** – Debugging ports for the app server.

⑥ Review Networking Basics for Lite and Business Users

What is a Network?

A computer network is a group of interconnected computers. Networks may be classified according to a wide variety of characteristics.

Network Types

- ‣ **LAN** *(Local Area Network)* – This is a network covering a small geographic area like a home, office, or building. Current LANs are most likely to be based on wired or wireless Ethernet technology.

- ‣ **WAN** *(Wide Area Network)* – A WAN is a data communications network that covers a relatively broad geographic area (e.g. one city to another or one country to another). It often uses transmission facilities provided by common Internet service providers. WAN technologies generally function at the lower three layers of the OSI Reference Model: the physical layer, the data link layer, and the network layer.

Communication Devices

- ‣ **NIC** *(Network Interface Card)* – An installed or integrated piece of hardware that allows the computer to connect to a network.

- ‣ **Modem** – A gateway device which allows connection to a WAN. A modem typically has an internal IP address for the LAN and an external IP address so it can be identified on the WAN.

- ‣ **Switch/Router** – Switches or routers are networking devices that forward data packets between networks using headers and forwarding tables to determine the best path or recipient. These devices can be used as LAN gateways, as they can process traffic to and from a WAN. They have an IP or gateway address.

- ‣ **Hub** – Like most switches and routers, a hub contains multiple physical connection ports. Unlike a switch or router, when a packet arrives at one port, it is copied to all of the hub's ports for transmission. When the packets are copied, the destination address in the frame does not change to a broadcast address: it simply copies the data to all of the nodes connected to the hub. Hubs are not gateway devices because they do not have an IP or gateway address.

Cabling Types

- ‣ **Patch Cable** - A standard network cable designed to connect devices to each other through a hub or gateway device.

- ‣ **Crossover Cable** - A network cable that is pinned in such a way that a gateway device is generally not necessary – typically used for directly connecting two nodes to each other.

Protocols

‣ **TCP/IP** *(Transmission Control Protocol/Internet Protocol)* – A technology that allows network traffic to be sent to a specific device or address via communication devices, with built-in error protection. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be 0 to 255. For example, 1.160.10.240 could be an IP address.

‣ **TLS** *(Transport Layer Security)* – An encryption protocol that allows security communications to proceed over a computer network.

‣ **Subnet Mask** – A 32-bit number that masks an IP address and divides the IP address into a network address and host address. A subnet mask is made by setting network bits to all "1"s and setting host bits to all "0"s. Within a given network, two host addresses are reserved for special purposes. The "0" address is assigned to a network address and "255" is assigned to a broadcast address. They cannot be assigned to a host.

‣ **UDP** *(User Datagram Protocol)* – A technology that broadcasts network traffic to all devices on the network under the assumption that the device in which the message was intended is connected without error protection.

Firewalls

‣ **Software Firewall** – A software firewall is installed on a PC and is designed to prevent unauthorized access. It prevents Internet traffic from entering or exiting that machine without the authorization of the administrator.

‣ **Hardware Firewall** – A hardware firewall is usually installed at the server or network level. It polices all incoming and outgoing traffic on a network by limiting access to ports or various PCs.

INSTALL ENTRÉ

Open the Software

If you are using an install CD, insert it now. Otherwise, contact your DMP representative or DMP Technical Support for access to the Entré software.

Follow the Installer Prompts

1 If using an install CD, the following screen displays automatically.

If not, open the Entré installer file.
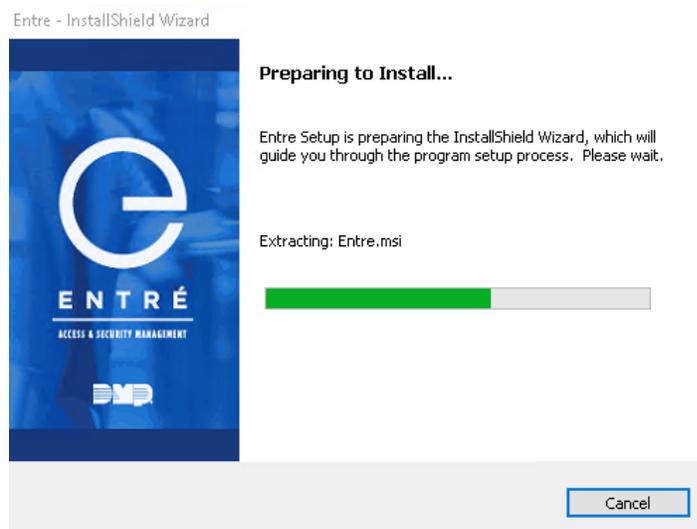
2 Select **Next** when the welcome screen displays.

3 Read and accept the terms in the Software License Agreement.

Select **Next**.
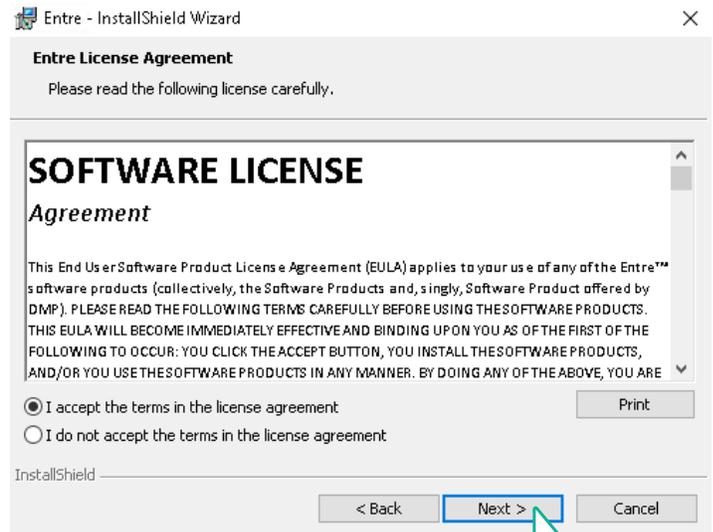
4 Enter your **User Name** and **Organization** in Customer Information. This information may be automatically filled out based on your computer's existing information.

Select **Next**.
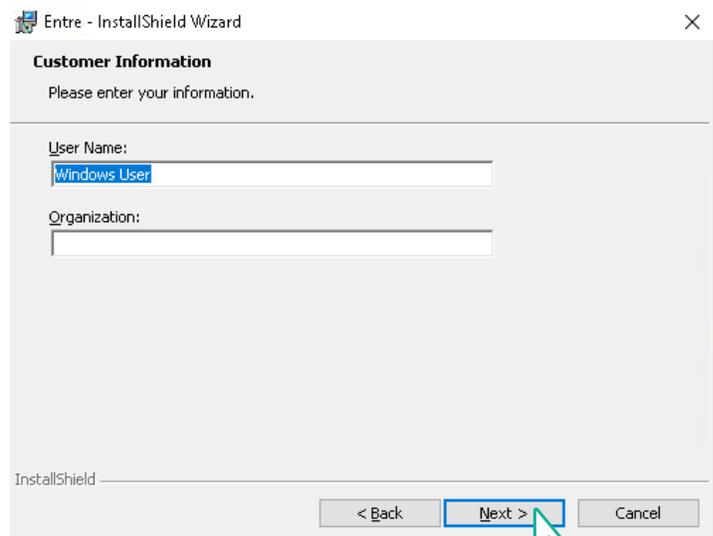
5 Choose **New** or **Upgrade**.

‣ Select **New** if installing Entré for the first time.

‣ Select **Upgrade** if upgrading an existing version of Entré.

Select **Next**.
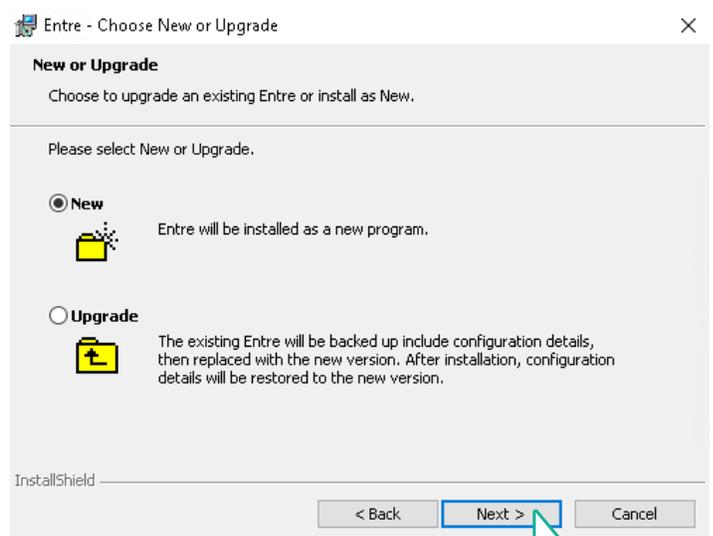
⑥ Choose a **Setup Type**.

Complete

    a. Select **Complete** to install all available Entré features to the specified directory.

    b. Select **Next**.

    c. Skip to step **⑦**.

Client

    a. Select **Client** to only install the Entré client.

    b. Select **Next**.

    c. Skip to step **⑦**.

Custom

    a. Select **Custom** to customize program features and where they are installed. Use this option if you would like to install a client workstation by itself.

    b. Select **Next**.

    c. Open the **Core Files** drop-down menu and select **This feature will be installed on local hard drive.** The **Core Files** feature is required for all installations.
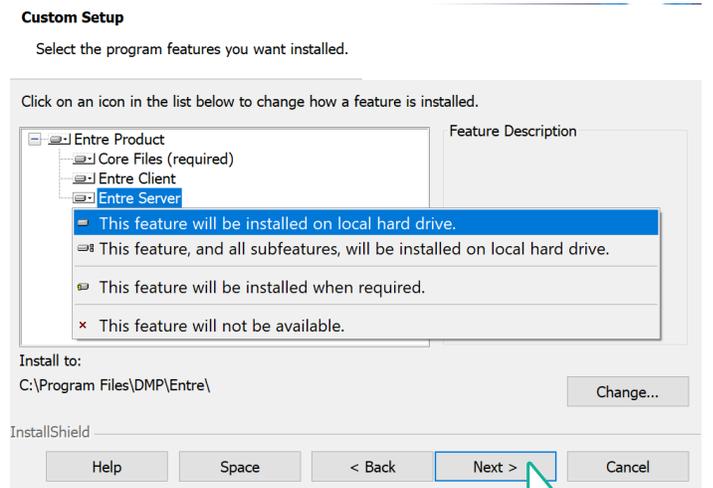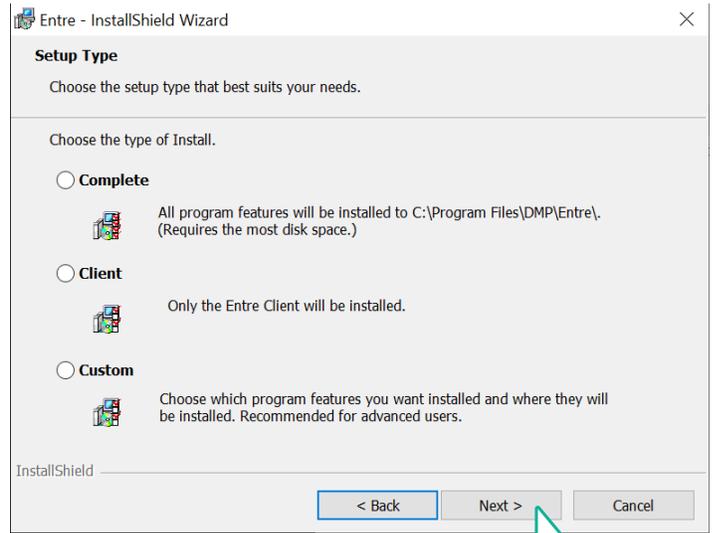
    d. Open the **Entré Client** drop-down menu. If you are installing a client workstation, select **This feature will be installed on local hard drive**. If you are not installing a client workstation, select **This feature will not be available**.

    e. Open the **Entré Server** drop-down menu. If you are installing a server, select **This feature will be installed on local hard drive**. If you are not installing a server, select **This feature will not be available**.

    f. Select **Next**.

7 Review the **Entré Prerequisites Checklist**.

    a. Read the checklist and verify that the environment is correct for Entré.

    b. Select that you have completed the checklist requirements.

    c. Select **Next**.

---
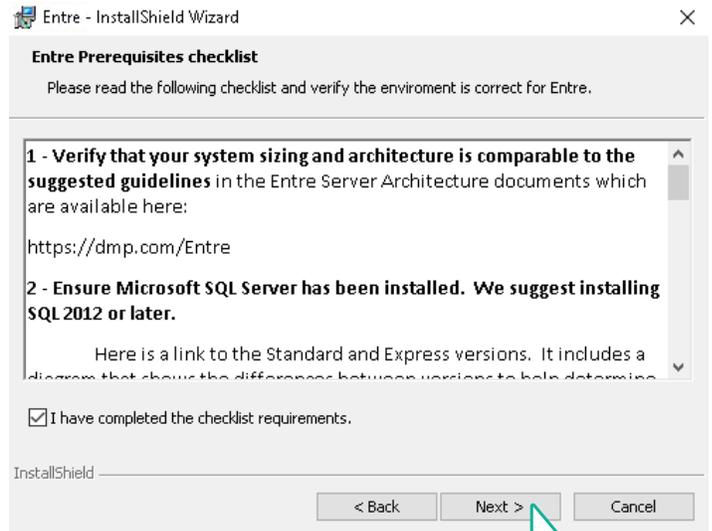
8 Enter the Serial Number and Database Settings.

    a. Enter the Entré Serial Number.

    b. Select if this is upgrading the current version or creating a new database.

    c. Enter the database settings.

    d. Select **Next**.

---
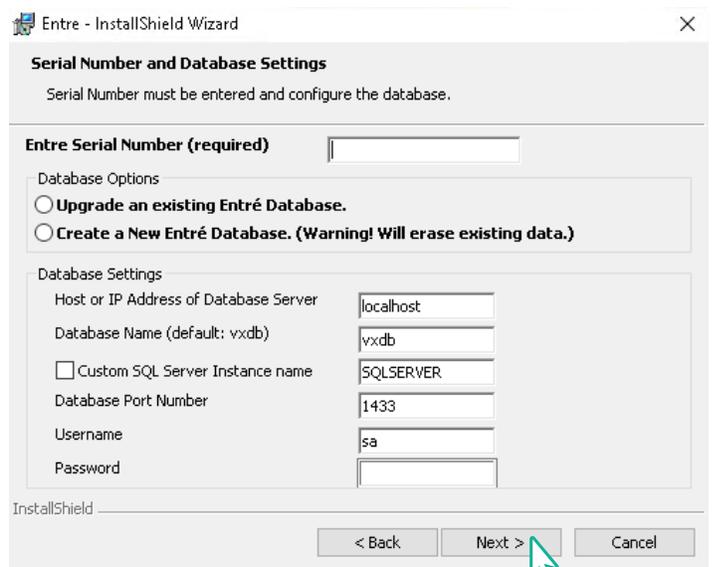
9 When **Use Windows Authentication** is selected, the following will be changed in the **hibernate.properties** file:

    ‣ hibernate.connection. url=jdbc:sqlserver://<dbhostname>:<dbhostport>; databaseName=<database>; integratedSecurity=true;
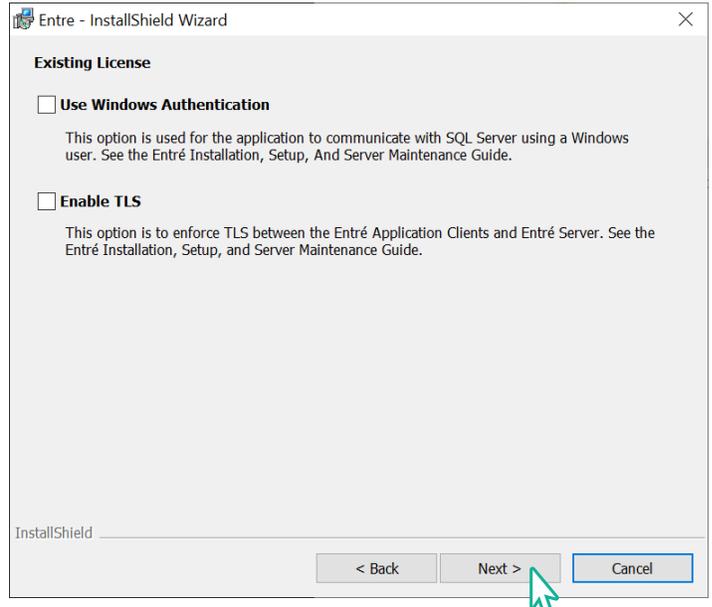
SQL Server logins will need to be set up for any account that will hit the database through Entré.

a. If the database and service are running on the same machine, the following login will need to be set up in SQL Server: **NT AUTHORITY\SYSTEM**.

b. If the service is running on a separate server, the service user will be similar to **<domain>/<servername>$**

c. If the customer is using Tomcat, the service account that Tomcat is running as will need to be added to SQL Server.

d. If the customer is using the thick client, each individual user will need to be set up in the SQL Server database.

> 📝 **Note:** The minimum SQL user permissions required for Entré to function are **Connect**, **Delete**, **Execute**, **Insert**, **Select**, and **Update**. When initially creating the database, the account must have the 'dbcreator' Server Role. This role can be removed after the database is imported.

If Tomcat is being used, it will need to be configured appropriately.

a. If running from a command line, a file named **setenv.bat** will need to be created in **<CATALINA_HOME>/bin**. The following line will need to be added

  ‣ set **CATALINA_OPTS=%CATALINA_OPTS% -Djava.library.path="%CATALINA_HOME%\webapps\dmp\WEB-INF\bin"**

b. If Tomcat is being ran as a service, run **<CATALINA_HOME>/bin/tomcat10w.exe** and set the **java.library.path** as follows:

  ‣ **Djava.library.path="CATALINA_HOME>\webapps\dmp\WEB-INF\bin"** where **<CATALINA_HOME>** is replaced with the path to the Tomcat installation directory.

(10) Configure the TLS Settings.

a. Enter the Keystore and Keystore Password.

b. Enter the TrustStore and TrustStore Password.

c. Select **Next**.
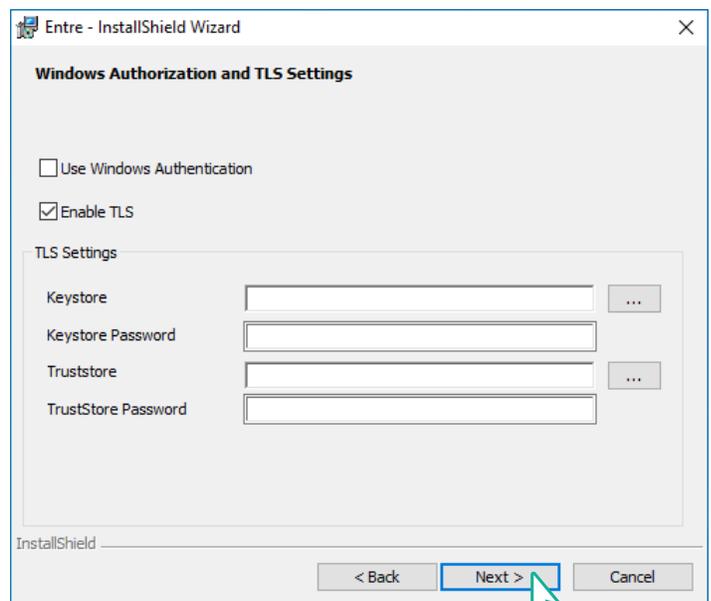
(11) Select **Install**.

12 If you've chosen to upgrade an existing instance of Entré, you'll see the following screens while the database is updating. Wait until the **InstallShield Wizard Complete** screen displays.

13 When the installation is complete, the following screen displays. Select **Finish**.
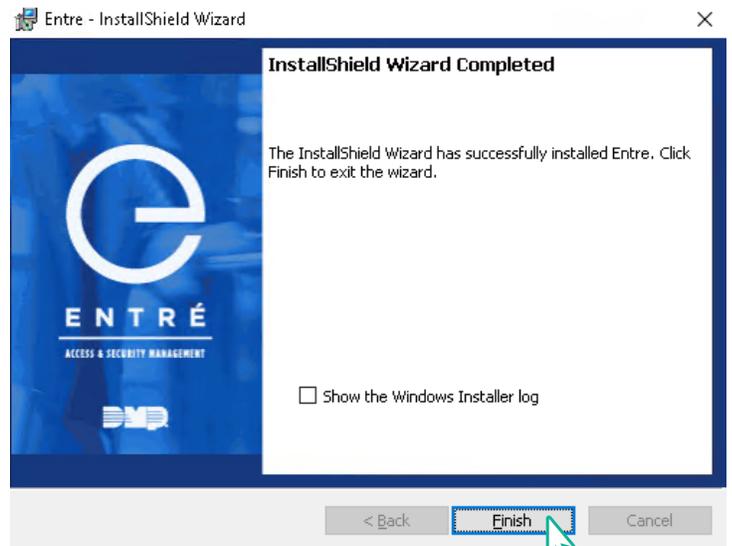
Configure Apache Tomcat Software

Deploy the Entré War File on the Apache Tomcat Server

You must have Apache Tomcat software installed prior to deploying this file.

1. Stop the Apache Tomcat Service on the host machine.

2. Copy the dmp.war file from **C:\Program Files\DMP\Entre\webapps\dmp.war**.

3. Paste the dmp.war file into the **C:\Program Files\Apache Software Foundation\TomcatX.X\webapps** folder (where **X.X** represents the version number).

4. Start the Apache Tomcat Service on the host machine.

5. Open your web browser and use the following URL to access your client:

    http://ipaddress:port/dmp/entre

Configure the Apache Tomcat Server for Entré

1. Run **Tomcat10w.exe** to configure the Apache Tomcat Server. The Dvx hostname should be the address of the App Server.

2. Add these settings as new lines in the **Java Options** section.

    ‣ **-XX:+UseG1GC**

    ‣ **-Xms256M**

    ‣ **-Xmn64M**

    ‣ **-Xmx384M**

3. If the Apache Server is running on a separate machine from the Entré Application server, add the following setting. This allows the machines to communicate with one another.

    ‣ **-Dvx.hostname=<your hostname or IP Address>**
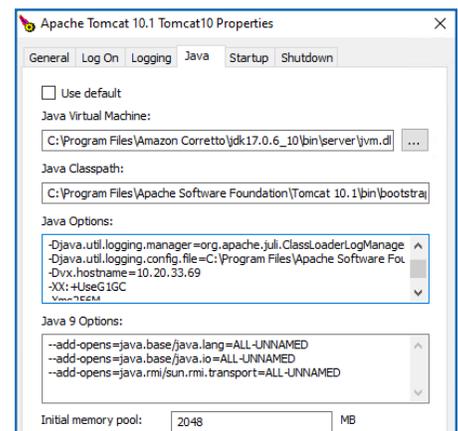
Configure TLS for the Apache Tomcat Server

1. Add these settings as new lines in the **Java Options** section.

    ‣ **-Dvx.useSSL=true**

    ‣ **-Dvx.entreProperties=C:\Program Files\TLSfiles\entre. properties**

    ‣ **-Djavax.net.ssl.keyStore=C:\Program Files\TLSfiles\Key. jks**

    ‣ **-Djavax.net.ssl.trustStore=C:\Program Files\TLSfiles\ Trust.jks**
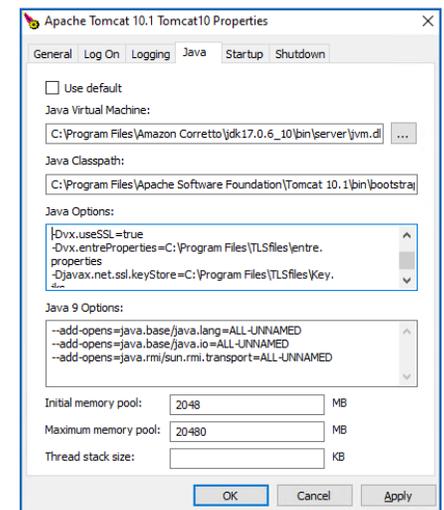
Configure the Memory Tools

1. Set the **Initial memory pool** to at least 25% of machine memory.

2. Set the **Maximum memory pool** to around 80% of machine memory.

Update Apache Tomcat dmp.war File

1. Stop the Apache Tomcat Server on the host machine.

2. Delete these directories:

   ‣ **C:\Program Files\Apache Software Foundation\Tomcat 10\webapps\dmp**

   ‣ **C:\Program Files\Apache Software Foundation\Tomcat 10\work\Catalina\localhost\dmp**

3. Delete the old **dmp.war** file in **C:\Program Files\Apache Software Foundation\Tomcat 10\webapps**.

4. Copy the new **dmp.war** file from **C:\Program Files\DMP\Entre\webapps\dmp.war**.

5. Paste the new **dmp.war** file into **C:\Program Files\Apache Software Foundation\Tomcat 10\webapps**.

6. Start the Apache Tomcat Service on the host machine.

7. Open your web browser to log in and verify operation of the updated **.war** file.

License the Software

Once you have installed and configured Entré and finalized your add-on modules and client license requirements, it is time to license your software. Any future add-on modules or client license additions will require a new license to be generated.

Before you continue, verify that you have accounted for the number of doors, number of clients, add-on modules (such as badge design, image capture, signature capture), and total number of client licenses that will be required. Then, go to the Entré Licensing website listed below:

‣ **DMP.com/license-entre**

Enter the information requested and submit the license request. DMP Customer Service will validate your request against the order you submitted. Your license will be generated and e-mailed to you.

Note: If you request a module on your license that is not on the order submitted through customer service, a customer service representative will attempt to contact you using the phone number listed on the form.

After you receive your new license, you will have to unzip the license, apply the license, update the database, and make sure it works. Follow the instructions that come with the license to ensure that it is installed properly.

1. From the server machine, exit the Entré Client and shut down the Entré Application Service manually within Windows.

2. Rename the default license file named *vx.license.properties* located in the C:\Program Files\DMP\Entré directory to *vx.license.properties.bak*.

3. Unzip and then copy the new license file into that directory.

4. Restart the Entré Application Service and start Entré.

5. Verify that your purchased modules and client licenses are functional.

Note: Modules that are licensed on a per-seat basis will have to be assigned to the workstation through the software licenses workstations menu.

Server Maintenance

Below is an overview of recommended Entré database maintenance best practices and how frequently they should be performed. For any additional information on these practices or how to perform them, refer to the Microsoft link below.

Microsoft Maintenance Plans
https://docs.microsoft.com/en-us/sql/relational-databases/maintenance-plans/maintenance-plans?view=sql-server-ver15

Rebuild/Reorganize Indexes

As data is added, indexes become inaccurate because data is added to the end instead of in order. It is a maintenance best practice to reorganize daily and rebuild weekly. Reorganizing is faster and puts less overhead on the system. Rebuilding takes more system resources and automatically updates statistics.

DAILY & WEEKLY

Update Statistics

MS SQL tries to optimize its performance by making the most used data the most readily available. "Statistics" is defined as which data is used and how often. Updating statistics allows MS SQL to come up with query plans to find data the fastest. Those statistics can be set to auto update or run nightly. You will want to update statistics manually after performing a database reorganization.

NIGHTLY

Check for Free Space

If auto grow is turned on, then you need to ensure that it is set to as close to 10% as possible. Also, ensure there is enough actual drive space to accommodate that growth.

WEEKLY

Check Disk Drive Contention

Ensure that there is not too much disk drive contention weekly. Ideally, data files and log files are on different physical disks. You can use Windows Performance Monitor to monitor the disks and ensure that the read and write cue lengths are always less than 1. If the cue length is longer than 1, the disk is receiving more requests for data than it can process. This will slow down performance significantly.

WEEKLY

Database Integrity Check

Use the DBCC Check to verify the health of the database in general. Also, run the DBCC check table and check ALLOC and the DBCC check catalog. These commands verify that the database is not corrupt.

WEEKLY

Manually Look for Indexes

Which indexes a database needs depends on how you use Entré. Over time, you may find that you can add indexes to improve performance. You can use SQL's built-in functionality to find what tables need additional indexes.

Parallelism

When you run a SQL query it will try to spread that query across all four processor cores. This can aid performance to an extent, but occasionally those processors can not handle anything else while this is happening. If one query is tying up the processor for too long, that core can not process anything else while it is happening. To see this, look at the weight states for threads on the SQL server and you will see CX packets. A CX packet is the state of the thread when there is not a core available to process the thread.

ADMINISTRATOR TASKS

Starting Entré

Upon starting, Entré will open a splash page displaying the start-up progress. Enter the IP address or host name of the server machine and log in with a valid username and password.

The system administrator username is *admin*. When Entré is first installed, the factory-default password is *pass*. Be sure to change the administrator password soon after installation.

If the username and password are valid, Entré displays the start page or the modules that were open during the operator's previous session.

If the username and password are not valid, an error is displayed. If the application has not accepted the username and password, repeat the steps above. Make sure the username and password are correct, with the correct case.

If problems continue, contact your system administrator. If you are the system administrator and cannot resolve the issue, contact your Entré distributor or system installer.
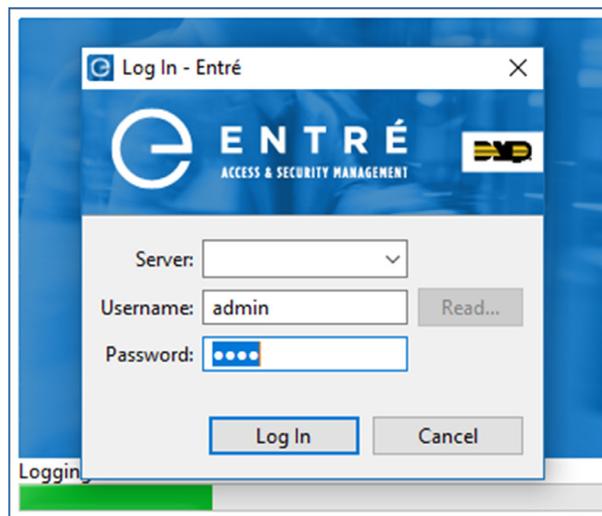
Configuring and Programming Systems

⚠️ **Warning:** For systems to work with Entré successfully, you must change each panel's Entré settings in Remote Options. To do this, you can use either Remote Link or a keypad connected to the system.

Navigate to the Remote Options section of the Programmer Menu and adjust the information to match the way you plan to set up Entré. This will allow Entré to retrieve panel programming and easily communicate with each system.

Entré Connection

Select **Net** from the Entré Connection drop-down menu to enable a dedicated network connection with Entré.

Entré Incoming TCP Port

Enter the number for the Entré Incoming TCP Port. This is the port used for programming and control commands with Entré. This port cannot be the same port that is programmed in the Network Programming Port. The default panel incoming TCP Port setting is **2011**.

Entré IP

Enter the primary Entré IP address for the Entré App server. This is where the panel sends network messages, alarms, and events.

Entré Outbound TCP Port

Enter the number for the Entré Outbound TCP Port. This is the port used to send alarm events and status messages to Entré. The default port setting is **2001**.

Entré Backup IP

Enter a secondary IP address for the Entré app server. This is used in case the connection to the primary IP fails. This may be left blank. In most cases, this is not used.

Entré Backup TCP Port

Enter the backup port number for the outbound Entré connection in case the connection to the primary IP fails. This may be left blank. In most cases, this is not used.

Entré Check-In Minutes

Select the rate at which check-in messages are sent over the Entré connection to verify that the network path is available. If Entré does not receive a check-in message from the panel by the time programmed into this field, Entré will attempt to re-establish communication with the panel three times before placing the panel in an offline status. Check-in minutes should be enabled for 20-30 minutes.

Entré Passphrase

To enable AES-128 Encryption between the panel and Entré, enter an 8 to 16-character passphrase using alphanumeric characters. If you leave the passphrase blank, the panel still communicates with Entré, but the data is not encrypted. The passphrase is blank by default. The matching encryption key is programmed in Entré by right-clicking on the DMP Driver in the Hardware Tree and entering the encryption key in the Driver sub menu.

If the panel does not have a DMP receiver IP address programmed in primary path 1 of the panel programming, then do the following:

1. Program the panel's path 1 as a primary network path.

    📋 **Note:** This is only necessary if the panel is not communicating to a DMP Receiver such as the SCS-VR or SCS-1R.

2. Place the IP address of the Entré Server machine in the receiver IP address field.

3. Disable all the options on the advanced tab.

This will cause the panel to request the time once per day and Entré will update the panel time based on the current time of the machine running the Entré Application Service and the Hours from GMT setting programmed in the panel System Options menu. Subsequent paths 2-8 can be programmed to communicate with all normal panel supported methods.

Configure the Panel for Remote Arming and Multiple Area Schedules

In order for any DMP software, including Entré, to be able to disarm the system or areas, Remote Disarm in the Remote Options section of the Programmer Menu must be turned on.

If multiple independent area schedules will be used, then Area Schedules in the Area Information section of the Programmer Menu must be turned on.

Configure the Panel for Real-Time Status

Entré will display real-time status for door access devices, zones, and outputs, but only if the panel is told to send them. Enabling real-time door status is not a global option and must be enabled for each device, zone, or output.

Only enable real-time status on key devices, zones, or outputs that you must see continual status updates on. Enabling real-time status will add a significant amount of events for the server to process for each door or zone.

> **Note:** Do not enable real-time status for devices, zones, or outputs that will have an excessive amount of activity that will not contribute to your security posture. For example, a PIR in a lobby would have too much activity to enable real-time status for this device.

‣ Door Status - turn on Door Real-Time Status for each access device in the Device Setup section of the Programmer Menu

‣ Zone Status - turn on Zone Real-Time Status for each zone in the Zone Information section of the Programmer Menu

‣ Output Status - turn Output Real-Time Status on for each output in the Output Information section of the Programmer Menu

Add a Panel in Entré

For information about adding and managing a panel, refer to the appropriate sections in LT-2495 Entré Operator's Guide.

Swap a Panel in Entré

For information about swapping a panel, refer to the appropriate section in LT-2495 Entré Operator's Guide.

Delete a Panel in Entré

For information about deleting a panel, refer to the appropriate section in LT-2495 Entré Operator's Guide.

Configure Entré for the Operator

In order to create a new operator login, use an existing profile or create a new profile. Profiles determine an operator's access to the Entré application.

1 Create the Operator Profile.

    a.   Go to **Configuration** > **Operator Profiles**.
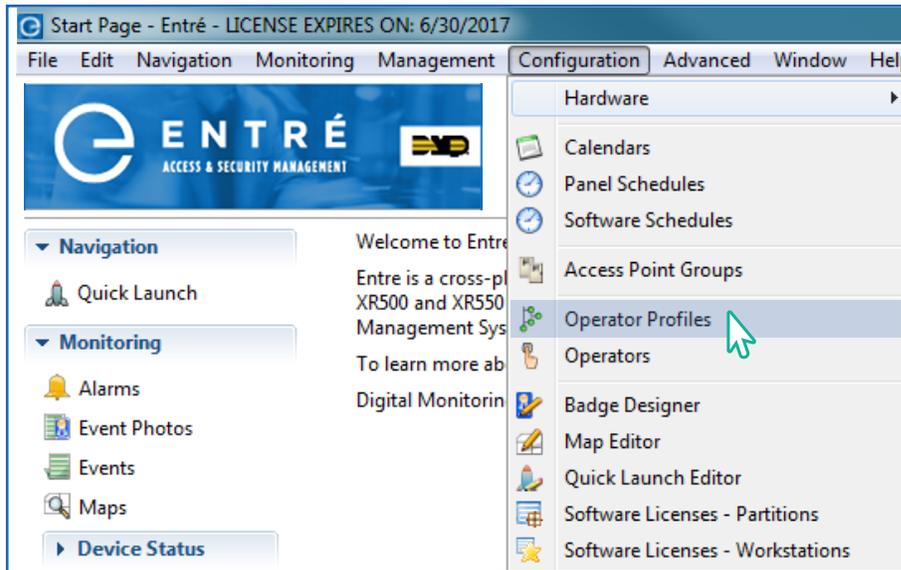
    b.   Select **Add**.

    c.   In **Template**, select one of the following:

- **Most Restrictive**: Allows only restricted use of the application. It does not allow access to any modules and does not allow to change passwords.

- **Least Restrictive**: Allows almost unlimited use of the application. It allows access to all the modules and allows the profile to change passwords. This option is recommended for new profiles.

- **Default**: Gives minor use of the application. The profile is allowed to change the password, but it does not have access to any modules.

    d.   Select **OK**.

    e.   Enter a profile name and select each module that the profile should have permission to access.

    f.   Select **Allow access to the application** and select **Save and Close**.

2 Create the user and add the user to the operator profile.

    a. Go to **Configuration** > **Operators**.

    b. Select **Add**, then complete the following required fields: Username, Password, Confirm password.

    c. In **Assigned to**, press **Select** and assign the login to a personnel record.

    d. To assign privileges to the login, go to **Profiles**.

    e. Select the profile that the login should have access to. A profile can be assigned to more than one location.

    f. Press **Save and Close**.

    g. To verify changes and operator permissions, log out of Entré, then log in as the new operator.

Refer to LT-2495 Entré Operator's Guide for more information about Entré Personnel and Users.

3 Configure the Data Types tab.

    a. Expand the **Data Types** tree.

    b. In **Access Level** and select **View**.

    c. In **Badge**, select **View**, **Create**, **Modify**, and **Delete**. This will grant the profile full access to the Badges module.

    d. In **Event**, select **View**.

    e. In **Personnel Record**, select **View**, **Create**, **Modify**, and **Delete**. This will grant the profile full access to the Personnel module.

    f. Press **Save and Close**.

4 Create a login for the badge privileges profile.

    a. Go to **Configuration** > **Login**.

    b. Select **Add**.

    c. Name the login *Badge Privileges* and enter a password.

    d. In **Profiles**, select **Badge Privileges**.

    e. Press **Save and Close**.

    f. To test the profile, log out of Entré, then log back in with the new profile.

TROUBLESHOOTING

Network and DBMS

IPCONFIG

This Windows utility provides diagnostic information related to TCP/IP network configuration. Ipconfig also accepts various Dynamic Host Configuration Protocol (DHCP) commands, allowing a system to update or release its TCP/IP network configuration.

To run the *Ipconfig.exe* utility, at a command prompt, type ipconfig, and then add any appropriate options.

- ‣ **ipconfig** (with no parameters specified) will display only the IP address, subnet mask, and default gateway for each adapter that is bound to TCP/IP.

- ‣ **ipconfig /all** displays all of the current TCP/IP configuration values, including the IP address, subnet mask, default gateway, and Windows Internet Naming Service (WINS) and DNS configuration.

Ping

Ping is the primary TCP/IP command used to troubleshoot connectivity, reachability, and name resolution.

Ping verifies IP-level connectivity to another TCP/IP computer by sending Internet Control Message Protocol (ICMP) Echo Request messages. The receipt of corresponding Echo Reply messages are displayed, along with round-trip times. You can use ping to test both the computer name and the IP address of the computer. If pinging the IP address is successful, but pinging the computer name is not, you might have a name resolution problem.

NSLOOKUP

Nslookup.exe is a command-line administrative tool for testing and troubleshooting DNS servers. This tool is installed along with the TCP/IP protocol through the PC's Control Panel. *Nslookup.exe* can run in two modes: interactive and non-interactive. Non-interactive mode is useful when only a single piece of data needs to be returned.

- ‣ The syntax for non-interactive mode is **nslookup [-option] [hostname] [server]**

- ‣ To start *Nslookup.exe* in interactive mode, simply type **nslookup [domain name]** into the command prompt. The domain name and addresses will be returned.

Typing "help" or "?" at the command prompt will generate a list of available commands.

Anything typed at the command prompt that is not recognized as a valid command is assumed to be a host name and an attempt is made to resolve it using the default server.

- To interrupt interactive commands, press Ctrl+C.

- To exit interactive mode and return to the command prompt, type exit at the command prompt.

Refer to the Microsoft Support Knowledge Web Page for further information on using this utility.

- Support.Microsoft.com/kb/200525

TCPING

TCPING measures the latency of a TCP connection. It connects and then disconnects, measuring the time it takes to get a SYN, SYN+ACK, ACK+FIN and FIN packet across the network. TCPING is a utility that can be downloaded from the Internet and installed on the site PC.

TCPING does a TCP connect to the given IP/port combination. The user can specify a timeout in seconds. This is useful in shell scripts running in firewalled environments. Often SYNs are just being dropped by firewalls, thus connection establishment will be retried several times (for minutes) until a TCP timeout is reached. With TCPING it is possible to check first if the desired port is reachable and then start connection establishment.

Exit Codes
- -1: an error occurred

- 0: port is open

- 1: port is closed

- 2: user timeout

Syntax
tcping [-q] [-t timeout_sec] [-u timeout_usec] <ip addr> <port>

- -q : quiet mode, do not output anything (except error messages)

- -t : timeout in seconds

- -u : timeout in microseconds

Using Wireshark

Wireshark can help you verify communication between the panel and Entré. The panel network interface card for an XR550 Series or TMSentry panel is a 100BASE-T full duplex hardware connection. Your network might have to be configured to allow bidirectional communication on the port programmed in either path communications or Remote Options menus. Wireshark can be programmed to filter out unwanted packets and only show the communication between your server PC and the panel by using the following filter:

- ‣ **host <space> (ipaddressofpanel) xxx.xxx.xxx.xxx**

This filter will only show TCP packets between the host PC and the panel IP address in the filter. Below shows a successful restart command and subsequent connection from Entré to the panel.

successful connection sequence to panel and subsequent panel status