

**How to install/configure/use the  
 Oracle/MS-SQL Interface with a Microsoft SQL Server**

**Table of Contents**

Overview ..... 3

    General Description..... 3

    Limitations..... 3

    Prerequisites ..... 3

Installation and Configuration ..... 4

    SQL Server..... 4

        Installation (if required) ..... 4

        Configuration ..... 4

            Enable Mixed Mode Authentication ..... 5

            Create a Card Gateway Login ..... 7

            Create Database object..... 8

            Windows Firewall..... 9

    Card Gateway ..... 10

        Register Oracle/MS-SQL Interface option ..... 10

        Configuration ..... 11

        Installation ..... 12

            Download & Copy the required DLL (Only for version 7.42 or lower)..... 12

            Windows Firewall..... 12

            Install the Card Gateway Component ..... 12

        Registration to the EntraPass Server..... 17

    T-SQL Queries..... 19

        Examples..... 19

            Create a new card ..... 19

            Delete a card ..... 19

            Update a card record ..... 20

            Create a new card from an existing record & delete the original ..... 20

            Create a new card from an existing record but keep the original..... 20

            Query active card records total ..... 20

            Query the total of card records with a **Valid** state ..... 20

Summary .....20  
Troubleshooting Guide .....21

## Overview

### General Description

The Oracle/MS-SQL Interface (nicknamed Card Gateway or CGW) creates a real-time mirror copy of the EntraPass card database (Card, Card Type, Card Access Group and Badge tables) in a MS-SQL or Oracle database object. In addition, it allows operators to interact with the system card database from a 3rd-Party application to add, modify and delete cards, or obtain card-related information from the EntraPass card database. The card information is updated in all the databases, regardless of the method used to access it. The Card Gateway ensures that modifications are conveyed to the EntraPass and SQL Database servers.

### Limitations

- Access Levels are assigned only through Card Access Groups
- The Card Gateway cannot synchronize with a Redundant Server, only the Primary CE/GE Server
- If the EntraPass Server is set to Advanced Card Management, the CGW can ONLY access Card Number 1.
- Version 7.42 & lower
  - The MS-SQL Server DB Object must be in SQL Server 2000 (80) Compatibility Level
  - The CGW is incompatible with SQL Server 2012 or above as Microsoft no longer supports the required compatibility level
  - The CGW is still using BDE (Borland Paradox) for its internal database
- This option is only available on Corporate & Global editions v3.10 and above
- Incompatible with the Hatrix option

The following instructions focus on the installation and configuration of the CGW interface with SQL Server 2008 R2.

### Prerequisites

- The Oracle/MS-SQL Interface option must be installed/registered/activated. Here are the part numbers:
  - Corporate Edition: E-COR-SQL
  - Global Edition: E-GLO-SQL
- The PC/Server operating system host must meet the Card Gateway minimum system requirements
- Version 7.42 & lower
  - The CGW needs ntwdblib.dll to communicate with the MS-SQL Server. The DLL must be copied on the appropriate System drive folder of the PC/Server the CGW resides on:
    - 32-bit OS: C:\Windows\System32
    - 64-bit OS: C:\Windows\SysWOW64
  - The Dynamic Link Library (DLL) can be downloaded from this [link](#)
  - Compatible MS-SQL Servers: 2000, 2005, 2008 and 2008 R2 (Full or Express Editions)

- Version 7.51.02 & higher
  - [SQL Server Native Client](#) must be installed on PC/Server running the CGW
  - Compatible with SQL Server 2000 up to SQL Server 2017 (Full or Express Editions)  
*Note: Although this version will synchronize with the above servers, it was only tested with SQL Server 2008 R2 in 2000 (80) Compatibility Level.*
- If not included with the chosen edition, download the latest [SQL Server Management Studio](#) (SSMS) as it provides an easy to use GUI to configure the SQL Server engine

## Installation and Configuration

### SQL Server

#### Installation (if required)

To ensure proper integration with the CGW, the SQL Server must be installed in *Mixed Authentication Mode* (SQL Server & Windows Authentication) (See Figure 1)

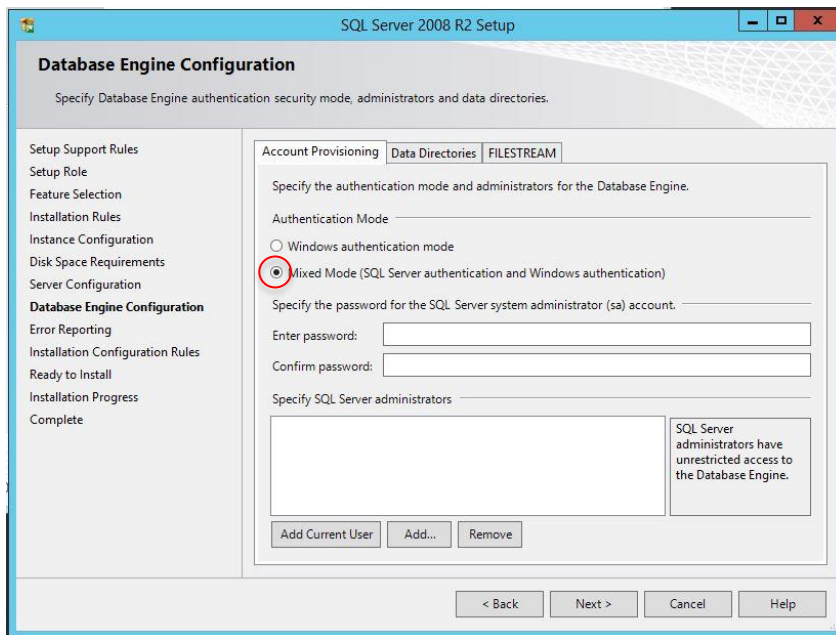


Figure 1

#### Configuration

Log in SQL Server as System Administrator (sa) or Administrator Windows Account using SSMS (see Figure 2)



Figure 2

### Enable Mixed Mode Authentication

If Mixed Mode Authentication was not selected during installation, it may be set through SSMS following these steps:

- Open SSMS & login SQL Server as Administrator
- In the Object Explorer pane, right-click the SQL Server Instance & select Properties

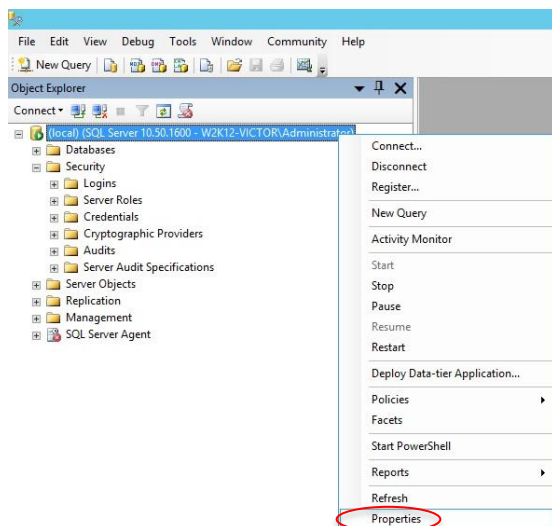


Figure 3

- In the left pane of the Server Properties window, select **Security**
- Under Server authentication, select **SQL Server and Windows Authentication Mode** (See below)
- Click **OK**

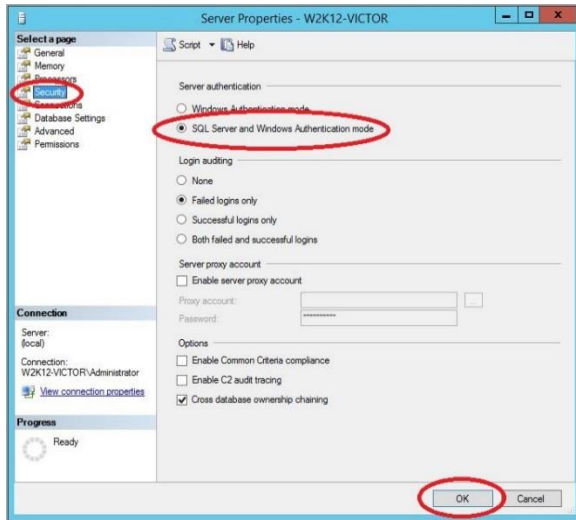


Figure 4

- Acknowledge the warning

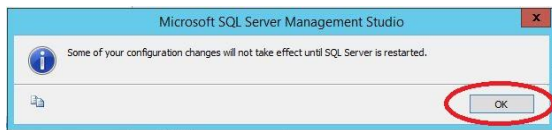


Figure 5

- Right-click the SQL Server instance and select **Restart**

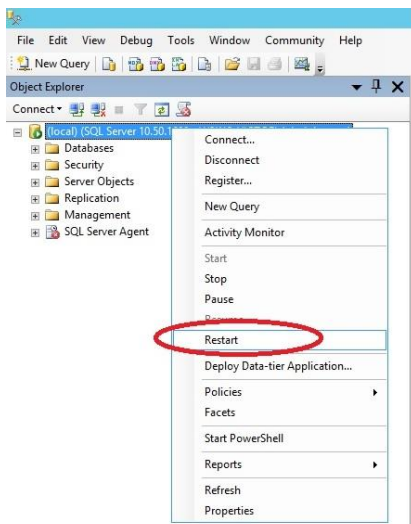


Figure 6

- Click **YES** to restart

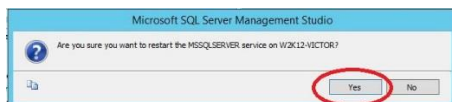


Figure 7

Create a Card Gateway Login (*see screenshots below*)

- Username: KANTECH5
- Password: kantech
- Disable *Enforce Password Policy*
- Role: Public

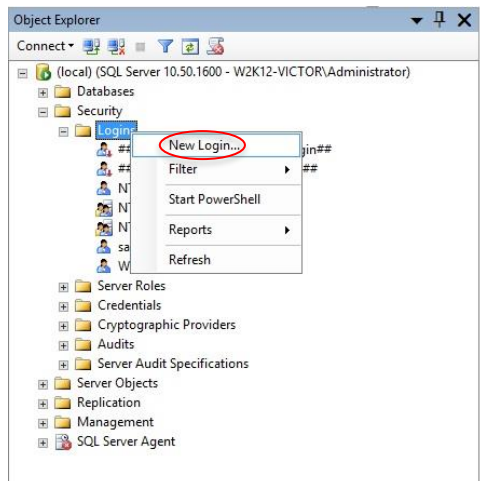


Figure 8

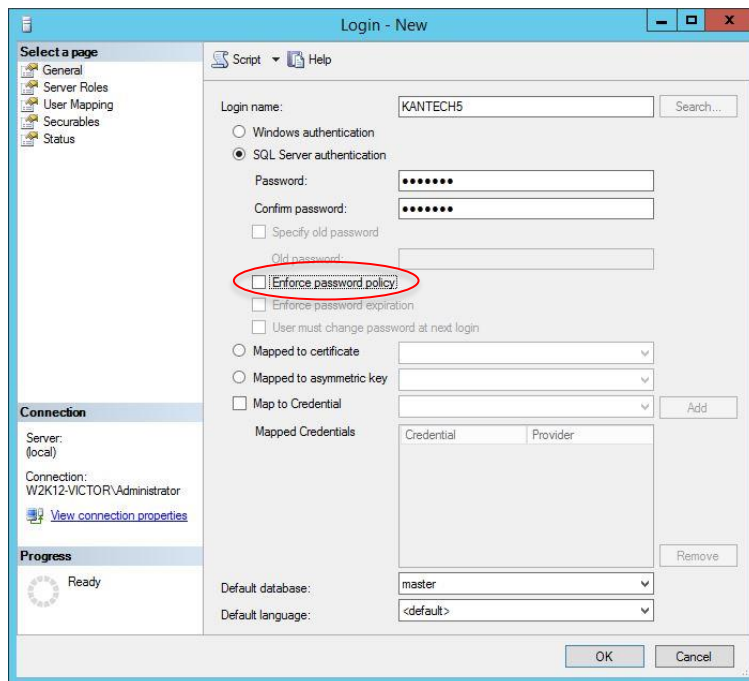


Figure 9

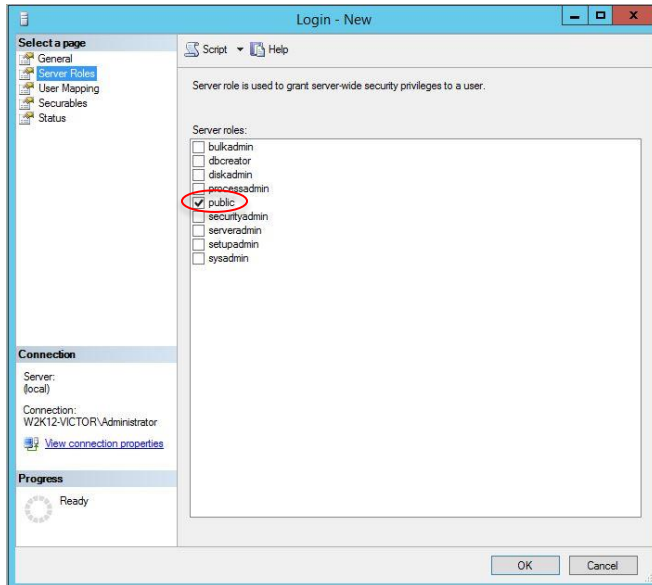


Figure 10

### Create Database object

- Name: KANCARD
- Owner: KANTECH5
- Compatibility Level:
  - Card Gateway 7.42 or lower: SQL Server 2000 Compatibility Level (80)
  - Card Gateway 7.51.02 or higher: SQL Server 2008 Compatibility Level (100)

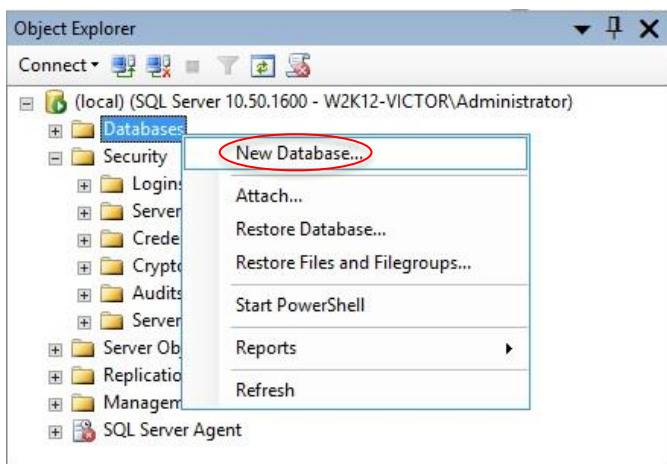


Figure 11



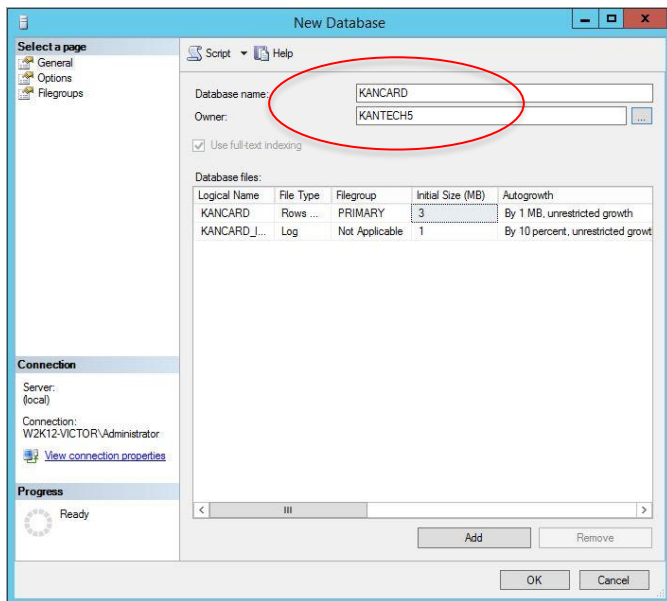


Figure 12

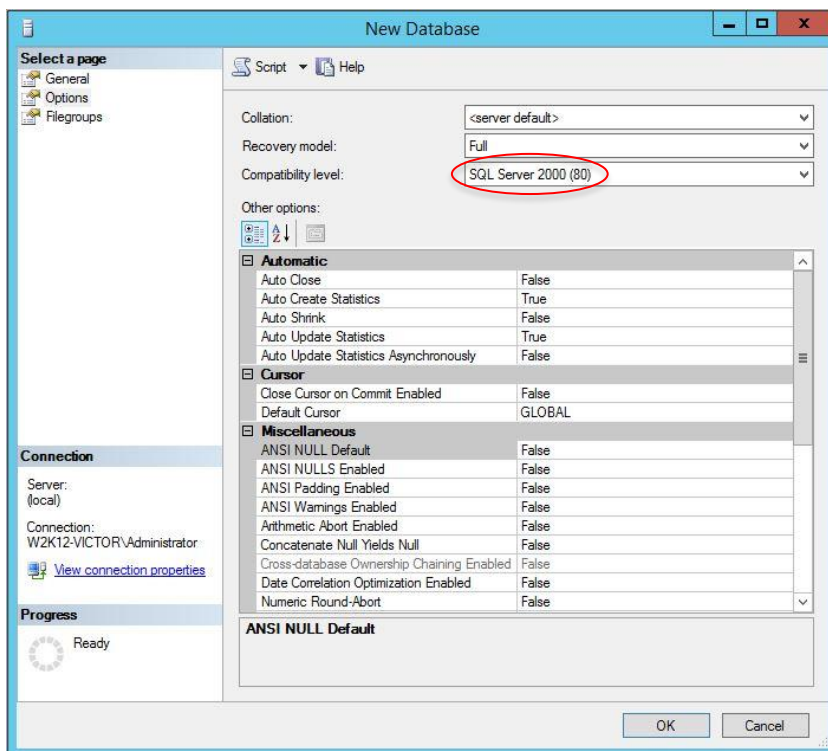


Figure 13

### Windows Firewall

If it wasn't automatically created, create a TCP 1433 Inbound Rule on the Domain & Private profiles (Default SQL Listening Port)

## Card Gateway

### Register Oracle/MS-SQL Interface option

- Login as Installer in a Workstation
- Go to Options/Registration (see screenshots below)
- Select *Oracle/MS-SQL Interface* under Optional or additional system components pane then click the 'Click here to install component' button
- In the Component registration window
- Enter the 16-digit option code provided with E-COR-SQL or E-GLO-SQL option you purchased
- Register it online or with a Kantech Technical Support technician
- Enter the Confirmation Code and click OK

(See Figures 14 & 15)

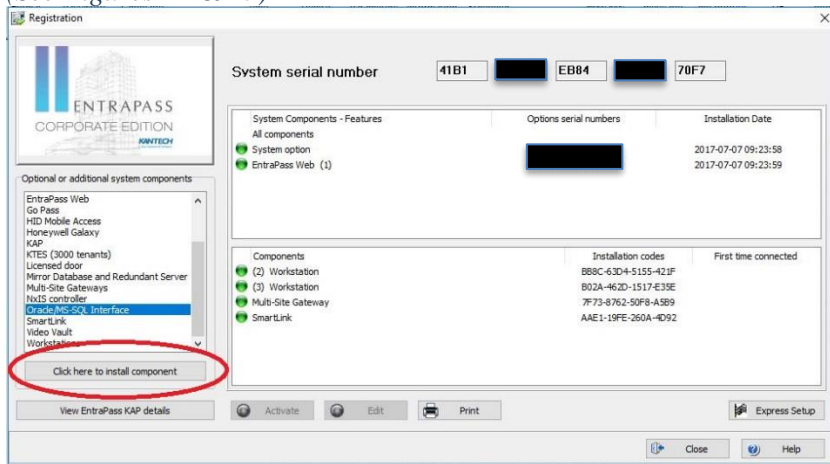


Figure 14

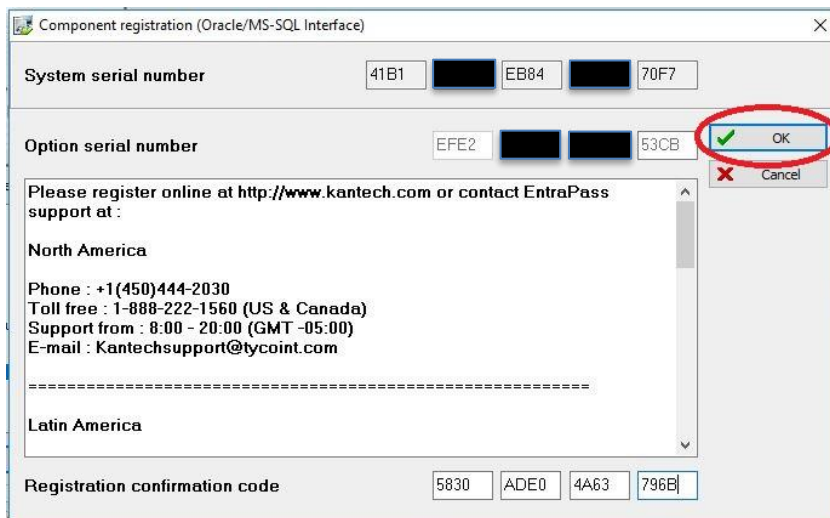


Figure 15

- Highlight the Oracle/MS-SQL Interface component in the bottom-right pane (see Figure 16)
- Click the ACTIVATE button to generate an Installation Code

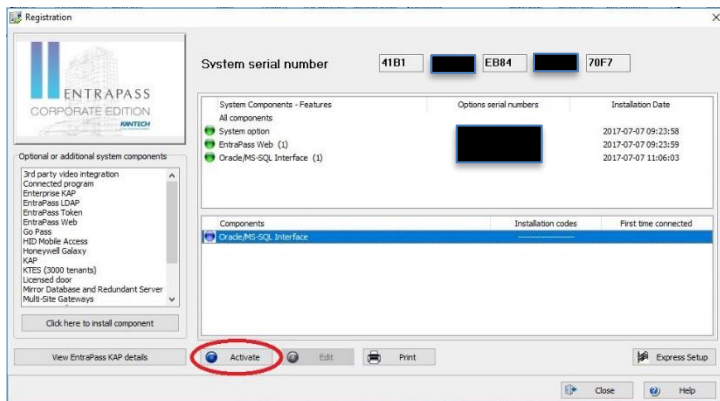


Figure 16

- Write down the installation code as it will be required to install the Card Gateway components (see Figure 17)

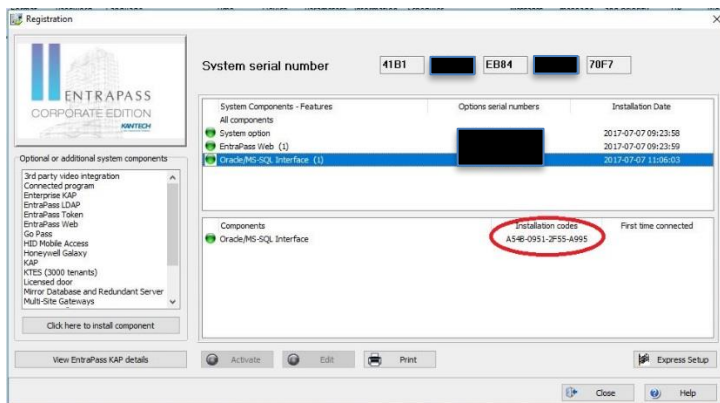


Figure 17

## Configuration

Although it is not yet installed, it may be configured. This will allow it to immediately synchronize on the initial start-up after installation.

From an Entrapass workstation

- Log on as Installer
- Go to Devices/Application, select Oracle/MS-SQL Interface
  - Under the Oracle/MS-SQL Interface tab, enter the following information
    - *Database Type:* SQL Server
    - *Server Name:* Name of the SQL Server instance or its IP address
    - *Database name:* KANCARD
    - *Enable Use Administrator access for initialization*
    - *Administrator user name:* KANTECH5
    - *Administrator password:* kantech
    - Database Access

- *User name:* KANTECH5
- *Password:* kantech
- Click SAVE then CLOSE

(See Figure 18)

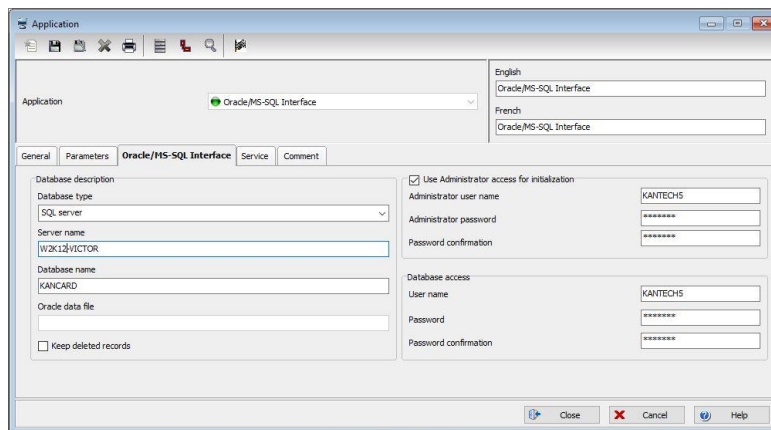


Figure 18

## Installation

On the selected PC/Server, log on with the Domain or Local Administrator account

*Note: Stop any EntraPass applications/Services that resides on the selected PC/Server prior to CGW installation.*

### Download & Copy the required DLL (Only for version 7.42 or lower)

- Download Link: [www.dll.dll.com/ntwdblib.dll\\_download.html](http://www.dll.dll.com/ntwdblib.dll_download.html)
- Copy ntwdblib.dll to the appropriate folder
  - 32-bit OS: C:\Windows\System32
  - 64-bit OS: C:\Windows\SysWOW64

### Windows Firewall

*If the Card Gateway is installed on a PC/Server other than the EntraPass Server, a Windows Firewall Exception needs to be created.*

If required, create a TCP 18106 Inbound exception on the Domain and Private profile.

### Install the Card Gateway Component

- Run the EntraPass CE/GE Setup Wizard (Setup.exe)
- Select *Install EntraPass system components* then click NEXT

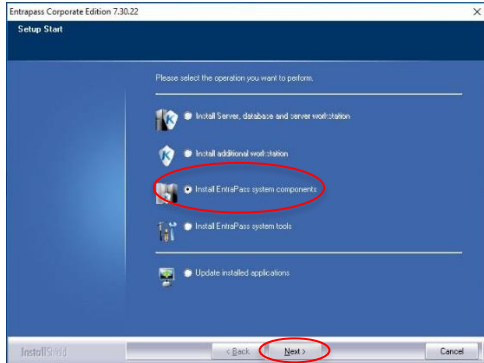


Figure 19

- Select *MS-SQL and Oracle interface* then click NEXT

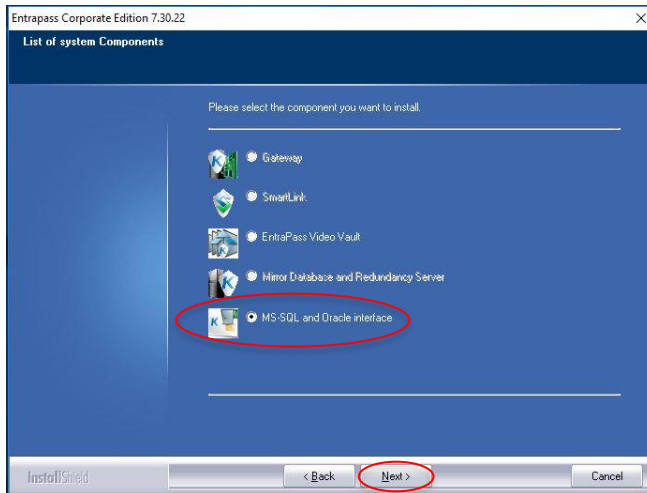


Figure 20

- Enter the Installation Code then click NEXT (*see example below*)

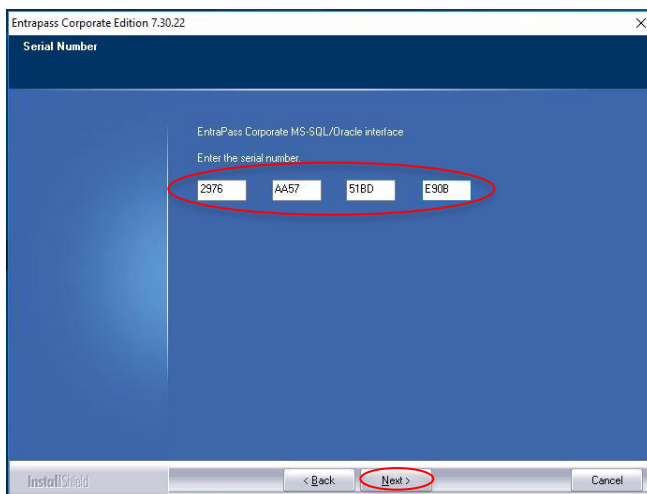


Figure 21

- Accept the EULA and click NEXT

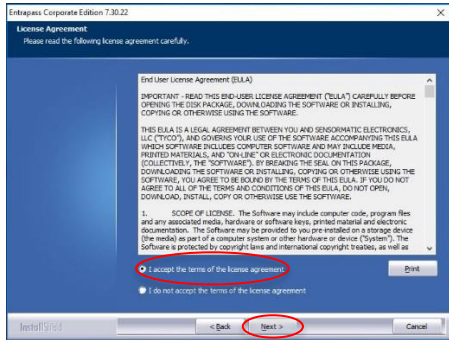


Figure 22

- On the Customer Information screen, enter information, if desired (optional). Then click NEXT.

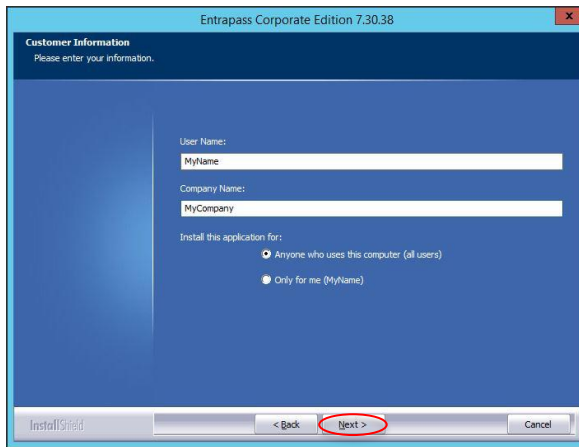


Figure 23

- On the *Choose Destination Location* screen, click NEXT

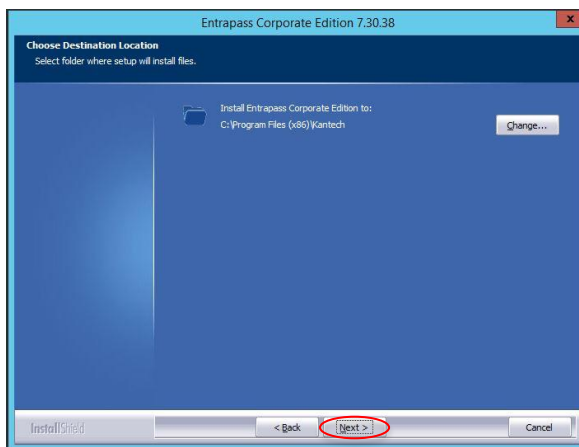


Figure 24

- On the *Ready to Install* screen, click INSTALL

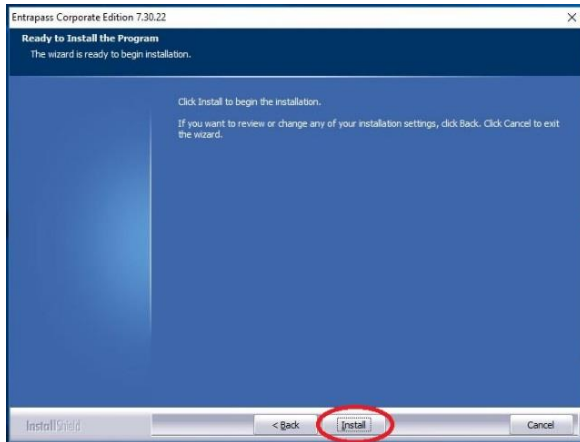


Figure 25

- On the BDE – InstallShield Wizard, click NEXT



Figure 26

- On the Customer Information screen, enter information, if desired (optional). Then click NEXT.

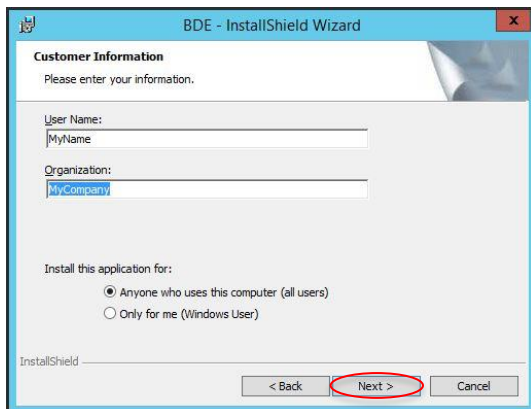


Figure 27

- On the Ready to Install screen, click INSTALL

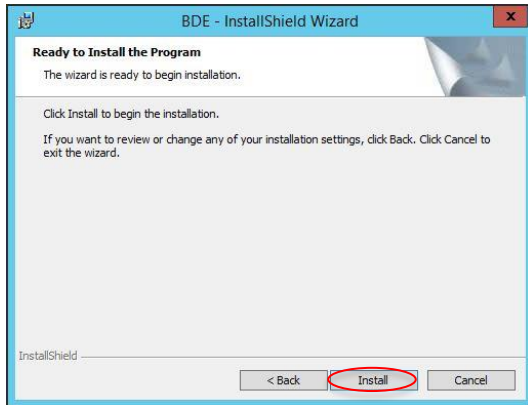


Figure 28

- Once installation is completed, click FINISH to continue with the Card Gateway installation

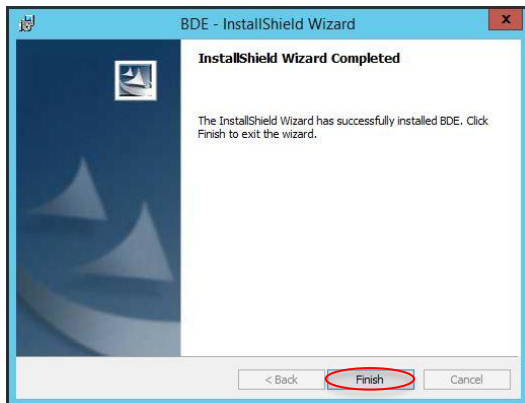


Figure 29

- Check the *Install MS-SQL and Oracle Interface as Windows Service* option, if desired.

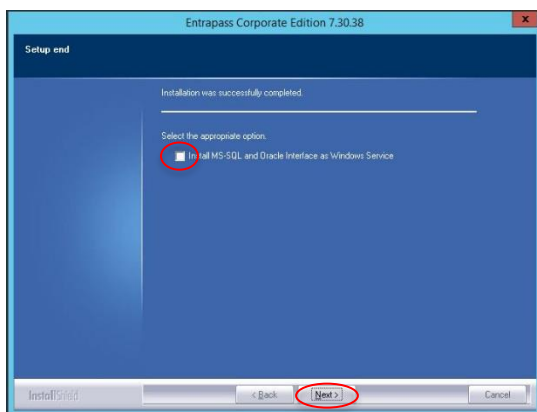


Figure 30

- On the InstallShield Wizard Complete screen, click FINISH to reboot & complete the installation.



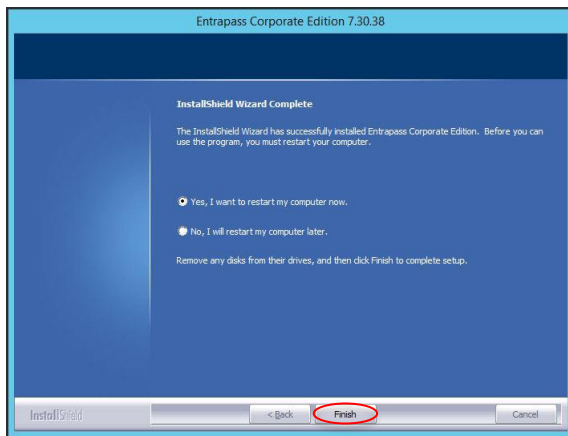


Figure 31

### Registration to the EntraPass Server

On the initial launch of the Card Gateway service or application, the Server Registration utility will start to register the CGW to the EntraPass Server

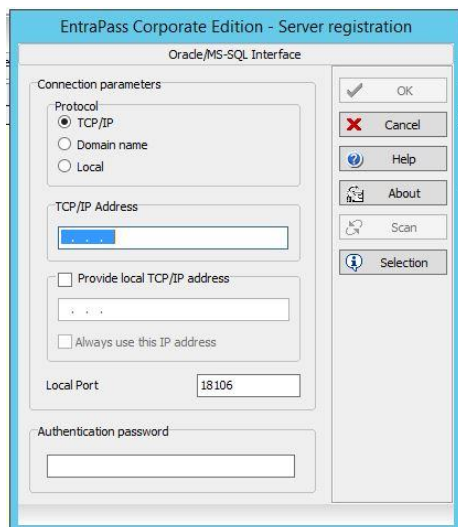


Figure 32

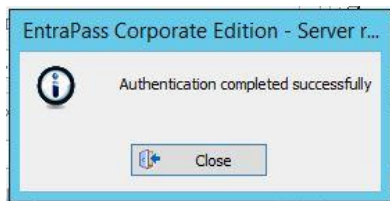
If the Card Gateway resides on the same machine as the EntraPass Server, select

- Protocol: *Local*
- TCP/IP Address: *127.0.0.1*
- Authentication password: *kantech (Default)*
- Click OK

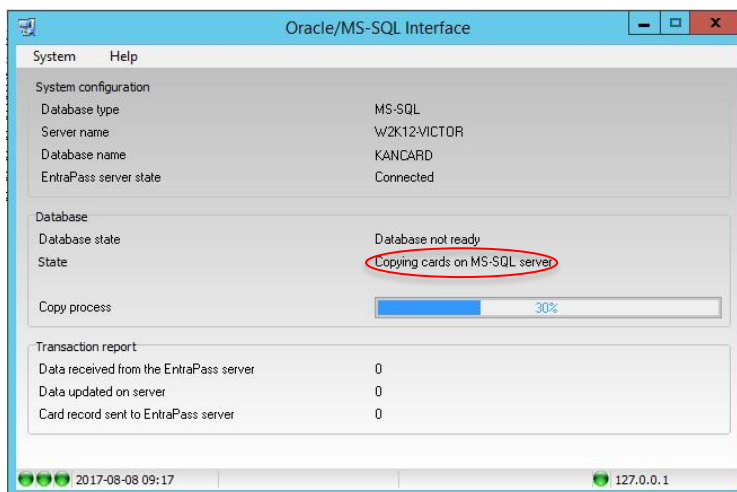
If it resides on a different PC/Server, select

- Protocol: *TCP/IP*
- TCP/IP: *<EntraPass Server IP>*
- Authentication password: *kantech (Default)*
- Click OK

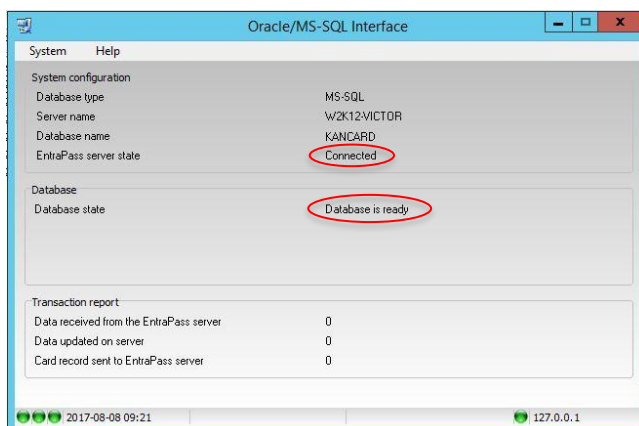
If the registration is successful, this message will appear:



If the Card Gateway is running as an application, while synchronizing the databases, it will show something like this:



Once both databases are synchronized, it will look somewhat like this:



## T-SQL Queries

### Remember

- Card operations are performed by inserting data in the tbOperationIn table
- The Card Gateway cannot assign an Access Level, but can be assigned using a Card Access Group
- A simple query to add a card includes:
  - PkIn – a unique transaction ID
  - CardNumber – the desired card number to work on
  - UserName – the card holder’s name (optional)
  - fkCardType – the Card Type PkData value
  - fkCardAccessGroup – the Card Access Group PkData value
  - CardOperation – the desired operation (Add, delete, etc)

Table 1

Card Operation Codes	
Value	Description
0	This command creates a new card record, if it doesn’t exist or modifies an existing card. In both cases, at the end of the transaction, the card record will <b>only</b> contain the information provided in the query. All previous information will be erased.
1	This command erases a card record. If the record doesn’t exist, the system will log an Error 1009 (Warning! Card already deleted) in the tbResult table.
2	This command modifies an existing card record or creates a new one, if it doesn’t exist. It will only update fields provided in the query.
3	This command creates a new card using information from an existing card record. Following this operation, the original card is deleted. <i>(Similar to Save As in a Workstation)</i>
4	This command creates a new card using information from an existing card record. Following this operation, the original card <b>is not</b> deleted.

### Examples

To assign a Card Type or a Card Access Group to a card, you must use its unique PkData value. For the next few query examples, we will assume the following:

*Card Type Name: Administrator – PkData value: 17*

*Card Access Group:*

- *Always Valid CAG – PkData value: 138*
- *M-F 09h00-17h00 CAG – PkData Value: 148*

#### Create a new card

```
INSERT INTO tbOperationIn ( PkIn, CardNumber, UserName, fkCardType, fkCardAccessGroup, CardOperation )
VALUES ( 1, '01FF:12345', 'John Doe', 17, 138, 0 );
```

#### Delete a card

```
INSERT INTO tbOperationIn ( PkIn, CardNumber, CardOperation )
VALUES ( 1, '01FF:12345', 1 );
```

### *Update a card record*

```
INSERT INTO tbOperationIn ( PkIn, CardNumber, UserName, CardOperation )
VALUES ( 1, '01FF:12345', 'Maxwell Sheffield', 2 );
```

### *Create a new card from an existing record & delete the original*

```
INSERT INTO tbOperationIn ( PkIn, CardNumber, RenameCardNumber, CardOperation )
VALUES ( 1, '01FF:12345', '01FF:54321', 3 );
```

### *Create a new card from an existing record but keep the original*

```
INSERT INTO tbOperationIn ( PkIn, CardNumber, RenameCardNumber, CardOperation )
VALUES ( 1, '01FF:12345', '01FF:54321', 4 );
```

### *Query active card records total*

```
SELECT COUNT(*) Total FROM tbCard;
```

### *Query the total of card records with a **Valid** state*

```
SELECT COUNT(*) Total FROM tbCard
WHERE CardState=0;
```

Record State Values	
0	Valid
1	Invalid
2	Stolen/Lost
3	Pending
4	Expired

### *Summary*

These above queries demonstrate simple transactions to create/delete/modify cards. You may review the fields available in the tbOperationIn table to see what information can be provided when creating a card records.

Finally, here's a more complex query you can use to add a new card with the Administrator card type & the M-F 09h00-17h00 card access group. It will also set an expiry date.

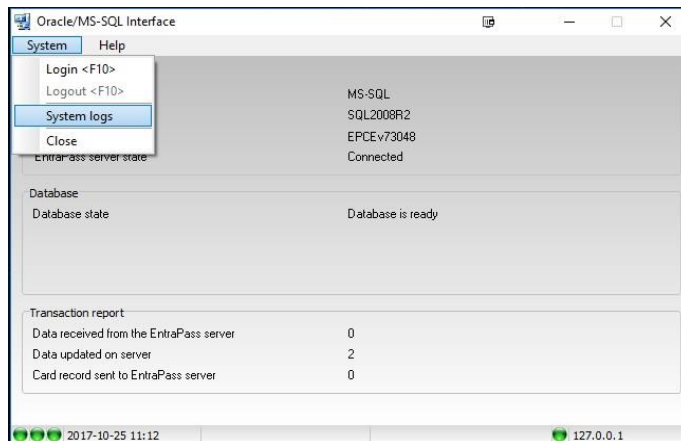
```
INSERT INTO tbOperationIn ( PkIn, CardNumber, UserName, fkCardType, fkCardAccessGroup, UsingEndDate,
EndDate, CardOperation )
VALUES ( 1, '01FF:12345', 'Maxwell Sheffield',
(SELECT PkData FROM tbCardType WHERE Description1 LIKE 'Admin%'),
(SELECT PkData FROM tbCardAccessGroup WHERE Description1 LIKE '%M-F 09h00-17h00%'),
1, '2021-01-01', 0);
```

*Enjoy!*

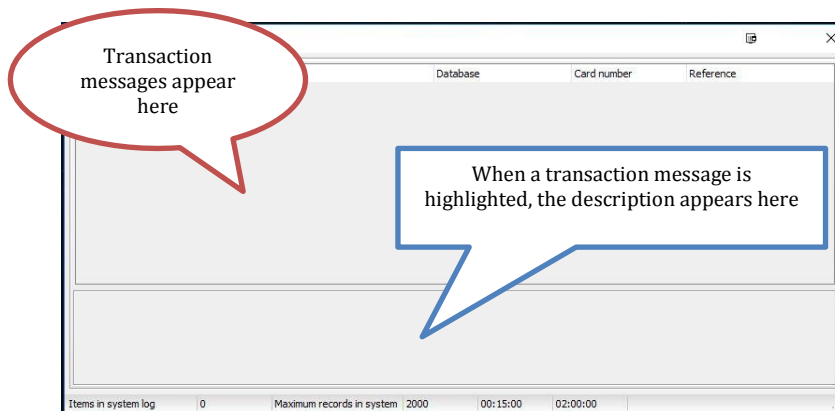
## Troubleshooting Guide

When the Card Gateway is run as an application, a Transaction window can provide error messages to help troubleshoot the issue.

- Start the Oracle/MS-SQL Interface application
- Click on System/System Logs



The Log window looks like this:



CGW Error Codes			
Code	Message	Description	Cause & Resolution
10000	Vendor Initialization Failed	Cannot load an IDAPI Service library File: NTWDBLIB.DLL Alias: MasterDB	DLL missing Copy ntwdbib.dll to the folder
10000	Cannot Locate or Connect to SQL Server	<b>Unable to connect:</b> SQL Server is unavailable or does not exist. <b>Unable to connect:</b> SQL Server does not exist or network general SQL error	<ol style="list-style-type: none"> <li>Invalid SQL server name: Validate name from SSMS</li> <li>SQL Server listening port is disabled, from the CGW PC, try: telnet &lt;SQL Server Name&gt; 1433 &lt;ENTER&gt;</li> </ol> If test fails, Validate SQL Server Firewall has a TCP 1433 Inbound exception on required profiles.
10000	Unknown username or password	Login failed for user <USERNAME> Login incorrect. Alias: MasterDB	Verify login in CGW (i.e. KANTECH5/kantech). If OK, validate in SSMS.
10000	General SQL error	CREATE DATABASE permission denied in database 'master'	The DB object does not exist: <ul style="list-style-type: none"> <li>Create the KANCARD DB object &amp; assign KANTECH5 as dbo</li> <li>Set Compatibility Level to SQL Server 2000 (80)</li> </ul>
10000	General SQL error	The server principal 'KANTECH5' is not able to access the database 'KANCARD' under the current security context Alias: LoginCardDB	SQL login ('KANTECH5') is not the dbo of KANCARD: Delete/recreate DB object using above instructions
10000	General SQL error	The Query uses non-ANSI outer join operators ("=" or "=*"). To run this query without modification, please set compatibility	KANCARD DB object is not set to the proper compatibility level: Set Compatibility Level to SQL Server 2000 (80).
10000	Required provider is not installed	Required provider is not installed	<b>This error will occur only on version 7.51.02 or higher</b> The <u>SQL Server Native Client</u> is not installed. (Click the link to download)
N/A	N/A	Card Gateway re-synchronizes over and over again without generating any errors.	The CGW Internal DB is corrupted. Resolution: Stop the CGW app/service Delete the contents of x:\...\CardGateway_?E\Data folder Paste the contents of Data_src into the Data folder Then restart the CGW app/service