



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

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Summary	
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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 Hattrix 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
 - o <u>SQL Server Native Client</u> 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 <u>SQL Server Management Studio</u> (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*)

5	SQL Server 2008 R2 Setup	
Database Engine Config Specify Database Engine authen Setup Support Rules Setup Rule	puration tication security mode, administrators and data directories. Account Provisioning Data Directories FILESTREAM	
Setup Role Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Ready to Install	Specify the authentication mode and administrators for the Datab Authentication Mode	ase Engine.
Complete	Add Current User Add Remove	SQL Server administrators have unrestricted access to the Database Engine.
	<pre>Add kemove </pre>	Cancel Help

Configuration

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



- 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**



Script • 🏠 Help				
Server authentication				
Windows Authoritie SQL Server and Wa	ndows Authentication mode			
O None				
Failed logins only				
O Successful logins only				
O Both failed and successful logins				
Server proxy account Enable server proxy Proxy account:	account			
Password:	*******			
Options				
Enable Common Crit	teria compliance			
 Enable C2 audit trac Cross database owr 	sing nership chaining			
	StL Server and Will SolL Server and Will SolL Server and Will SolL Server and Will Solution Failed logins only Societate Solution Solutio	Vicense and Windows Authentication mode SQL Server and Windows Authentication mode SQL Server and Windows Authentication mode Surver proxy account Bath failed and accessful logins Server proxy account Proy account Proy account: Proy account:		

• Acknowledge the warning



• Right-click the SQL Server instance and select Restart



Figure 6

• Click **YES** to restart

2	Are you sure you want to	restart the MSSQLSERVER ser	vice on W2K12-VICTOR	3	
a			(Yes	No



Create a Card Gateway Login (see screenshots below)

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



8	Login -	New		_	□ X
Select a page General	🔄 Script 🔻 🖪 Help				
Image: Securation of the	Login name: Windows authentication SQL Server authentication Password: Confirm password: Specify old password Old password Enforce password expir- User must change pass Mapped to certificate Mapped to asymmetric key	KANTECH5			Search
Connection	Map to Credential			~ [Add
Server: (local) Connection: W2K12-VICTOR\Administrator W2 View connection properties	Mapped Credentials	Credential	Provider		
Progress					Remove
Ready	Default database: Default language:	master <default></default>		~	
			ок		Cancel



8	Login - New		D X
Select a page	Script - 🗗 Help		
General Server Roles Server Roles Securables Securables Status	Server role is used to grant server-wide security privileges to a user. Server roles: bulkadmin dekadmin dekadmin		
Connection	weccessdmin ▼ puble Secutysdmin etveradmin sysadmin		
Server			
(local)			
Connection: W2K12-VICTOR\Administrator			
View connection properties			
Progress			
Ready			
	OK	0	ancel

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)







8		New	Database		_ 🗆 X
Select a page	Script -	Help			
General					
Filegroups	Database name:		KANCARD		
	Owner:	< l>	KANTECH	5	
				/	
	Use full-text in	idexing			
	Database files:				
	Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth
	KANCARD	Rows	PRIMARY	3	By 1 MB, unrestricted growth
	KANCARD_I	Log	Not Applicable	1	By 10 percent, unrestricted growt
Connection					
Server: (local)					
Connection: W2K12-VICTOR\Administrator					
View connection properties					
Progress					
Ready	<	10			>
A A A A A A A A A A A A A A A A A A A				Add	Remove
					OK Cancel

E	New Database	_ _ ×			
Select a page	🕵 Script 🝷 🚺 Help				
Options Pilegroups	Collation:	default> 🗸	-		
	Recovery model: Full	v	4		
	Compatibility level: SQL Sen	ver 2000 (80)			
	ther options:				
	Automatic	~	1		
	Auto Close	False	1		
	Auto Create Statistics	True			
	Auto Shrink	False			
	Auto Update Statistics	True			
	Auto Update Statistics Asynchronously	False			
	🗆 Cursor				
	Close Cursor on Commit Enabled	False			
	Default Cursor	GLOBAL			
	Miscellaneous				
Connection	ANSI NULL Default	False			
	ANSI NULLS Enabled	False			
Server:	ANSI Padding Enabled	False			
(iocal)	ANSI Warnings Enabled	False			
Connection:	Arithmetic Abort Enabled	False			
W2K12-VICTOR\Administrator	Concatenate Null Yields Null	False			
View connection properties	Cross-database Ownership Chaining Enabled	False			
	Date Correlation Optimization Enabled	False			
Deserves	Numeric Round-Abort	False v			
Ready	ANSI NULL Default				
		OK Cancel]		

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)

	System serial number 41B1	EB84 70F7
	System Components - Features All components System option EntraPass Web (1)	Options serial numbers Installation Date 2017-07-07 09:23:58 2017-07-07 09:23:58 2017-07-07 09:23:59 2017-07-07 09:23:59
IntraPass Web P Pass OP Pass OP Solution Colored OP Solution Colored OP Solution Colored OP Solution Colored	Components (2) Workstation (3) Workstation Multi-Site Gateway SmartLink	Installation codes First time connected B00-4 50-45 155-421F B00.4 450-1517-835E P71-8 762-369F-8.489 AAE 1-19FE-260A-4092
Click here to install component		

Figure 14

Component registration (Oracle/MS-SQL I	nterface)	×
System serial number	41B1 EB84 70F7	
Option serial number	EFE2 53CB	Сок
Please register online at http://ww support at :	w.kantech.com or contact EntraPass	Cancel
Phone : +1 (450)444-2030 Toll free : 1-888-222-1560 (US & C Support from : 8:00 - 20:00 (GMT -1 E-mail : Kantechsupport@tycoint.o	anada) 15:00) com	
 Latin America		
Registration confirmation code	5830 ADE0 4A63 7968	

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

	System serial number	EB84	70F7
EN TRAPASS CORPORATE EDITION KWITEON	System Components - Features Al components System option EntraPass Web (1) Orade/MS-SQL Interface (1)	Options serial numbers	Installation Date 2017-07-07 09:23:58 2017-07-07 09:23:59 2017-07-07 11:06:03
Correcticity program the second secon	Components	Installation cod	es First time connected
Click here to install component			

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

	System serial number 41	B1 EB84	70F7
	System Components - Features All components System option Entrafaes Web (1)	Options serial numbers	Installation Date 2017-07-07 09:23:58 2017-07-07 09:23:59
2rd party video integration A Connected program Interprise KAP IntraBass IDAP IntraBass IDAP IntraBass IDAP IntraBass Vide 50 Pass IDI Mobile Access Tomewell Galavy	Components Crade/MS-SQL Interface	Installation AS-8-0951-7F1	First time connected
CAP CTES (3000 tenants) icensed door Yrror Database and Redundant Server Multi-Site Gateways			

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
 - \circ 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)

oplication 💿 Oracle/MS-SQL Interface		English Oracle/MS-SQL Interface	
		Oracle/MS-SQL Interface	
neral Parameters Oracle/M5-SQL Interface Service Comment	I lea Administrativ	r accase for initialization	
Database type	Administrator user na	ane	KANTECH5
SQL server	Administrator passwo	ard	******
Server name W2K12 VICTOR	Password confirmatio	n	******
Database name	Database access		
KANCARD	User name		KANTECHS
Orade data file	Password		******
Keep deleted records	Password confirmatio	n	******

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: <u>www.dlldll.com/ntwdblib.dll_download.html</u>
- Copy ntwdblib.dll to the appropriate folder
 - 32-bit OS: C:\Windows\System32
 - o 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





• Select MS-SQL and Oracle interface then click NEXT

Entrapass Corporate Edition 7.30	.22	×
List of system Components		
	Please select the component you want to install.	
	Soleway	
	💝 🄎 SmartLink	
	🗭 🔍 EntraPass Video Vault	
	Mirror Database and Redundancy Server	
	MS-SQL and Dracle interface	
InstallShield	< Back Next >	Cancel

Figure 20

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





• Accept the EULA and click NEXT



• 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



Ready to Tostall the Po	05100	
The wizard is ready to be	grann jin installation.	
	Click Install to begin the installation.	
	If you want to review or change any of your installation setting	ps, click Back. Click Cancel to exit
	the wizard.	
InstallShield	< Back [Install]	Cancel

• On the BDE – InstallShield Wizard, click NEXT



Figure 26

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

<u>ان</u>	BDE -	InstallShield \	Nizard	×
Customer I	nformation			
Please ente	er your information.			
User Name:				
MyName				
Organizatio	in:			
MyCompar	ny			
Install this a	application for:			
	Anyone who uses this	s computer (all user	rs)	
	Only for me (Windows	s User)		
installShield				
and constructed				
		< Back	Next >	Cancel
istallShield —		< Back	Next >	Cancel

Figure 27

• On the Ready to Install screen, click INSTALL



ان	BD	E - InstallShield	Wizard	×
Ready to Ins The wizard is	tall the Program	allation.		
Click Install t	o begin the installati	on.		
If you want exit the wize	to review or change rd.	any of your installat	on settings, dick Back.	Click Cancel to
InstallShield		< Back	Install	Cancel

• 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.





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

onnection parameters	5	\checkmark	OK
TCP/IP			Cancel
			Cancer
		0	Help
		5	About
TCP/IP Address		1 8	Scan
			Calastian
Provide local TO	CP/IP address		Selection
3.1.1]	
Always use this	IP address		
Local Port	18106		
uthentication passwo	rd		
-		-	

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:

n	Oracle/MS-SQL Interface	- 🗆 X
System Help		
System configuration		
Database type	MS-SQL	
Server name	W2K12-VICTOR	
Database name	KANCARD	
EntraPass server state	Connected	
Database		
Database state	Database not ready	
State	Copying cards on MS-SQL server	
Copy process	30%	
Transaction report		
Data received from the EntraPass server	0	
Data updated on server	0	
Card record sent to EntraPass server	0	
000000000000000000000000000000000000000	1	127.0.0.1

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

ľ	Oracle/MS-SQL Interface	_ _ X
System Help		
System configuration		
Database type	MS-SQL	
Server name	W2K12-VICTOR	
Database name	KANCARD	
EntraPass server state	Connected	
Database		
Database state	Database is ready	
Transaction report		
Data received from the EntraPass server	0	
Data updated on server	0	
Card record sent to EntraPass server	0	
2017-08-08 09:21		9 127.0.0.1

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)
 - o fkCardType the Card Type PkData value
 - o 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 only 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. (Similar to Save As in a Workstation)				
4	This command creates a new card using information from an existing card record. Following this operation, the original card is not 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

Oracle/MS-SQL Interface		œ	<u> </u>	×
System Help				
Login <f10></f10>				
Logout <f10></f10>	MS-SQL			
System logs	SQL2008R2			
Close	EPCEv73048			
Entramass server state	Connected			
Database				
Database state	Database is ready			
Transaction report				
Transaction report Data received from the EntraPass server	0			
Transaction report Data received from the EntraPass server Data updated on server	0 2			
Transaction report Data received from the EntraPass server Data updated on server Card record sent to EntraPass server	0 2 0			

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 ntwdblib.dll to the folder				
10000	Cannot Locate or Connect to SQL Server	Unable to connect: SQL Server is unavailable or does not exist. Unable to connect: SQL Server does not exist or network general SQL error	 Invalid SQL server name: Validate name from SSMS SQL Server listening port is disabled, from the CGW PC, try: telnet <sql name="" server=""> 1433 <enter></enter></sql> 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</username>	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: Create the KANCARD DB object & assign KANTECH5 as dbo Set Compatibility Level to SQL Server 2000 (80) 				
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	This error will occur only on version 7.51.02 or higher 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				