# ADVANTECH Enabling an Intelligent Planet

# **Advantech AE Technical Share Document**

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Category	□FAQ ■SOP	Related OS	N/A	
Abstract	CODESYS_How to use Advantech Database Agent and sample program			
Keyword	CODESYS, Advantech Database Agent			
<b>Related Product</b>	APAX-5580CDS			

#### Problem Description:

This document shows how to use Advantech Database Agent and sample program.

#### Answer:

This document describes Advantech Database Agent and sample program with database library. Advantech Database Agent installed on APAX-5580 is a bridge between database library in CODESYS and ODBC Administrator in Windows. When users use Advantech database function blocks in IEC program, Advantech Database Agent will caught the SQL command from CODESYS and then send it to ODBC Administrator. Any SQL database supporting ODBC interface can receive those command and execute it.

I will use "txt database" to demonstrate this function. It can be easier to realize than other complicated databases (like MySQL...). The ODBC driver, "Microsoft Text Driver", I used here can output the data to txt database in the local computer. The topology of this application is like the following figure. The database server, RTE and Advantech Database Agent are all installed in APAX-5580. Two segments should be verified when using CODESYS sample code, <u>CODESYS RTE to Advantech Database</u> <u>Agent</u> and <u>Advantech Database Agent to Database Server</u>. We will establish the Advantech Database Agent to Database Server.



The following is step by step to establish this application.

- 1. Install Advantech Database Agent in APAX-5580
- 2. Open Advantech Database Agent and chose ODBC Admin

Advantech Database	Agent		
File Help Database Configuration			
System data source:		▼ Update	ODBC Admin
User:			

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 Add "Microsoft Text Driver" and select the location of "txt database" at System DSN Page. Then press <u>OK</u> to complete the setting of <u>ODBC Admin</u>

🔄 ODBC Data S	Source Administrator	×	Create New Data Source		×
User DSN Sys System Data S	stem DSN File DSN Drivers Tracing	Connection Pooling About		Select a driver for which you want to set up	a data source.
Name	Driver			Name	V ^
bt database	Microsoft Text Driver (* txt: *.csv)			Microsoft ODBC for Oracle	6
		Remove	01110	Microsoft Paradox Driver (*.db )	6
		Configure	0	Microsoft Paradox-Treiber (*.db )	6
			2	Microsoft Text Driver (*.txt; *.csv)	6
				Microsoft Text-Treiber (".txt; ".csv)	6
				Microsoft Visual FoxPro Driver	1
				< <u> </u>	•
th or	e indicated data provider. A System data so this machine, including NT services.	Apply Help		< Back Finish	Cancel
	ODBC Text Setup		- 5	? ×	
	Data Source 3 e:	bxt_database		ОК	
	Description:			Cancel	
	Database			Help	
	Directory: C:\		L	, iop	
		Select Directory	4		
	Use Current Dire	ectory	ſ	Options>>	

4. Click <u>Update</u> to import the System DSN you just created and choose it in list.

Advantech Database	Agent		x
File Help Database Configuration System data source: User:	bt_database	Update ODBC Add	min
Password: Idle Timeout (s):	60 <u>*</u>	3 Save	

- 5. Go to the location of "txt database and create "table1.txt" to be the "txt database".
- 6. Open it and create the fields first. The separator "," is to separate each field.

🔁 🕨 Compute	r ▶ APAX-5580 (C:) ▶
• 🔻 🧾 Open	<ul> <li>Print New folder</li> </ul>
orites esktop wunloads cent Places	Name Table1 Table1 - Notepad
aries	File Edit Format View Help

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7. Then validate the process between ODBC driver and database with INSERT/SELECT command by Advantech Database Agent.

SQL Tool	
SQL command:	
insert into table1.tx	t values(1,2)
X	insert into table1.txt values(1,2)
SQL result:	Rows: Columns:
SQL Tool	
SQL command:	
select * from table 1.b	d
X	select * from table1.txt Send
SQL result:	Rows: 1 Columns: 2
A	В
▶ 1	2

If the "SQL result" will shows the value you just inserted. It means that the process between Agent, ODBC driver and database server is work. The next step is to execute the Advantech database sample program. There are some variable the programmer need to set before download it into RTE.



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- 8. After install Advantech CODESYS ADD ON, open the "Advantech\_Database\_sample.projectarchive"
  - at ~/{usermame}/Advantech Database.

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 Here introduce POU\_INSERT sample task first. The main purpose of task POU\_INSERT is to insert the data into database. In the sample code, the three values should be notice, sTableName, sColumeName and sValue.

Variable	Description
sTableName	table name in database
sColumnName	column in the table
sValue	inserted value for each column in table

For this sample, it wants to insert the value into **table1** including five fields, **id/iVar1/iVar2/fVar/sText**. Therefore, we create that in location of "txt database".

Please note that the number of colume filled in **sColumnName** sould be exactly the same as in the table.



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10. Then fill the value of fields the programmer wants to insert.



- 11. Download the project to RTE and log project to monitoring.
- 12. Then make start\_connection is true to enable the POU\_INSERT.
- 13. If the process between RTE, Advantech Database Agent and txt database is work. The insert command will execute periodically based on the interval set in MainTask configuration page.

Type Cydic	▼ Interval (e.g. t#200ms): t#500ms
Watchdog	
Enable	
Time (e.g. t#200ms	):
Sensitivity:	1

Please note that **Idle timeout** in Advantech Database Agent should be bigger than periodic interval in CODESYS MainTask configuration page. Otherwise, the agent will kick CODESYS RTE SQL command request.

14. Open the table1.txt to make sure that the value inserted into table1.

📄 table1 - Notepad			
File Edit Format View Help			
id, iVar1, iVar2, fVar, sText "1", "2", "3", "4.4", "test" "1", "2", "3", "4.4", "test"			
3			

Note:

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1. If I want to make the "txt database" to another computer? How can I do?

Answer: put the Advantech Database Agent into the computer where the database is located and let **sIPAddress** in Advantech Database sample program point to it by IP address.



2. How can use the **POU** sample task

Answer: The task POU can execute any SQL command which is set in the variable **strCommand**. The following is the example, make strCommand to be a string, 'select \* from table1.txt'. The return Array will restore the selected data back from the table1.

	R_TRIG_1	DB_SQL_Command_0		
OR	R_TRIG	DB_SQL_Command		
Connect_done FALSE >1	CTK 🌾 0	xExecute xDone		cmd_done TRUE
cmd_done TRUE		xBusy	- cmd_busy FALSE	
		xError	cmd_error FALSE	
		diResult	-cmd_result 1	
strComma	nd 'select * f >	sCommand		
I	ADR (Return_ary) —	pDestAddr		
timeout	t T#Oms	tTimeOut		
	DBConnection —	DBConnection		
			J	

🔷 strCommand	STRING(Param.max	'select * from table1.txt'
timeout	TIME	T#0ms
🗏 < Return_Ary	ARRAY [1ADV_DB	
Return_Ary[1, 1]	STRING(ADV_DB.Pa	'1'
Return_Ary[1, 2]	STRING(ADV_DB.Pa	'2'
Return_Ary[1, 3]	STRING(ADV_DB.Pa	'3'
Return_Ary[1, 4]	STRING(ADV_DB.Pa	'1.1'
Return_Ary[1, 5]	STRING(ADV_DB.Pa	'test'