

How to Safely Force an Oracle Database to FIELDBUS

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The following is to be used for those cases where you have a database (Seed File from a Client from before Fieldbus or an old Project that is resurrected) and you are going from Conventional Equipment (4-20mA) to one that requires Fieldbus. We are going to cover the worst possible scenario (where pieces are defined incorrectly) and turn it into a database that works when you use the Fieldbus functions. As always, use these steps on a copy of the original database. After this works the modified Database can become the new Master Database. These instructions are for an Oracle database, modifications may be necessary for SQL Server for a NULL string.

STEP 1

1) Are any of your devices set up (defined) for Fieldbus? This can be found on the I/O Type Table.

SELECT * FROM COMPONENT_SYS_IO_TYPE

Cmpnt Sys Io Type Id	Proj Id	Site Id	Chg Num	Plant Id	Unit Id	Chg Status	User Name	Chg Date	Cmpnt Sys Io Type Name	Cmpnt Sys Io Type Desc	Area Id	Cstag Sys Io Type Name
-1	8	16569	0	1	1	1W	INTOOLS	2/28/1995	MIXED	MIXED I/O		1 MIXED
0	8	16569	0	0	0	0W	INTOOLS	2/28/1995				0
1	8	16569	0	1	1	1W	INTOOLS	2/28/1995	DCS-AI	DCS-Analog Input	1	AI
2	8	16569	0	1	1	1W	INTOOLS	2/28/1995	DCS-AO	DCS-Analog Output	1	AO
3	8	16569	0	1	1	1W	INTOOLS	2/28/1995	DCS-DI	DCS-Digital Input	1	DI
4	8	16569	0	1	1	1W	INTOOLS	2/28/1995	DCS-DO	DCS-Digital Output	1	DO
5	8	16569	0	1	1	1W	INTOOLS	2/28/1995	DCS-PI	DCS-Pulse Input	1	PI
5403	8	16569	0	1	1	1W	RGREENW	9/19/2001	PLC-AB-AO	Allen Bradley-Analog Output	1	
7	8	16569	0	1	1	1W	INTOOLS	2/28/1995	PLC-AB-AI	Allen Bradley-Analog Input	1	Fieldbus

From this printout, we can tell the following:

The FIELDBUS entry has been associated to PLC-AB-AI

Looking further down the report, we find that FIELDBUS has been defined:

Cmpnt Sys Io Type Id	Proj Id	Site Id	Chg Num	Plant Id	Unit Id	Chg Status	User Name	Chg Date	Cmpnt Sys Io Type Name	Cmpnt Sys Io Type Desc	Area Id	Cstag Sys Io Type Name
51853	8	16569	0	9601	22229	1W	RGREENW	1/28/2002	HOLD	SIGNAL on HOLD pending...	9680	
8	8	16569	0	1	1	1W	INTOOLS	2/28/1995	SI	Serial Interface	1	SI
76324	8	16569	0	76221	76223	1W	TANLA	1/23/2007	FIELDBUS	Digital, serial, two-way comm	76222	
77079	8	16569	0	76221	76223	1W	TANLA	2/13/2007	RTU-DO	RTU-Digital Output	76222	
77094	8	16569	0	76221	76223	1W	TANLA	2/13/2007	RTU-DI	RTU-Digital Input	76222	
77111	8	16569	0	76221	76223	1W	TANLA	2/13/2007	RTU-FF	RTU Foundation Fieldbus	76222	
79726	8	16569	0	76221	79267	1W	GAEKWADB	4/24/2007	DCS REG HS	DCS Regulatory Selector Sw	79266	
79758	8	16569	0	76221	79267	1W	GAEKWADB	4/24/2007	INT ?		79266	
80075	8	16569	0	76221	79267	1W	RICEWM	4/25/2007	DI		79266	

FIELDBUS must be Cmpnt_Sys_Io_Type_Id = 7 or it ***will not work***.

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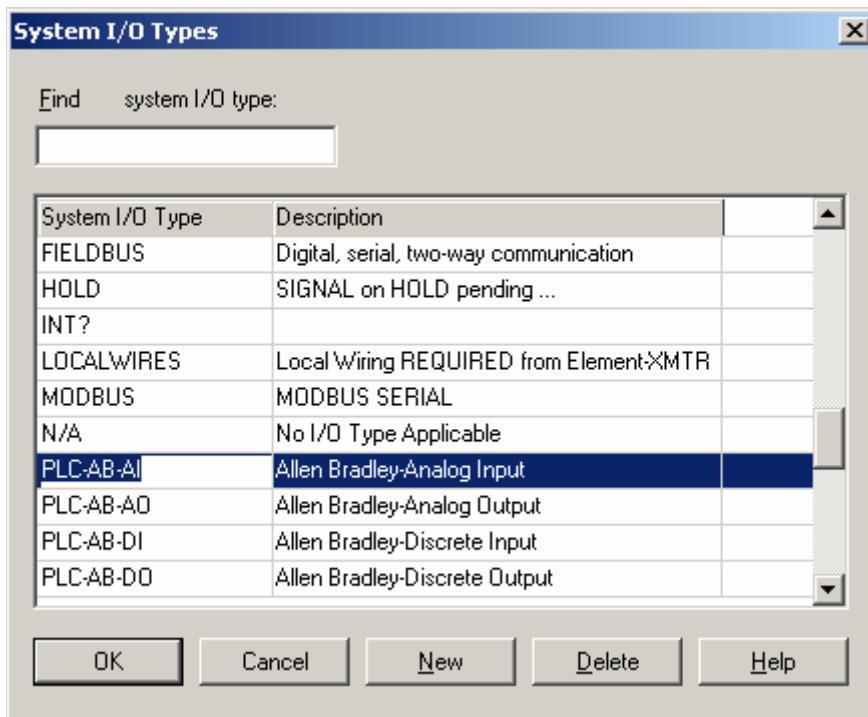
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The path forward is to do some shuffling to define the Fieldbus segment properly. Make sure the Tag Numbers defined as IO TYPE = PLC-AB-AI and IO TYPE = FIELDBUS are not going to be severely affected when you make your changes. The users probably had issues with wiring not working and brought this to your attention. At worst case, have the users change the Tag Numbers temporarily to another IO TYPE.

Edit the FIELDBUS entry to something else (example OLD_FIELDBUS) – it is now a placeholder for the users to see when changing to the real FIELDBUS designation.

Then change PLC-AB-AI to FIELDBUS (modify highlighted item below).



If you open the Instrument Index you will see the changes immediately. Sweep through all of the tags in the database and change them as needed.

Now that the FIELDBUS System I/O Type is defined the way Intergraph intended, it is time to follow through with the VIRTUAL TAG.

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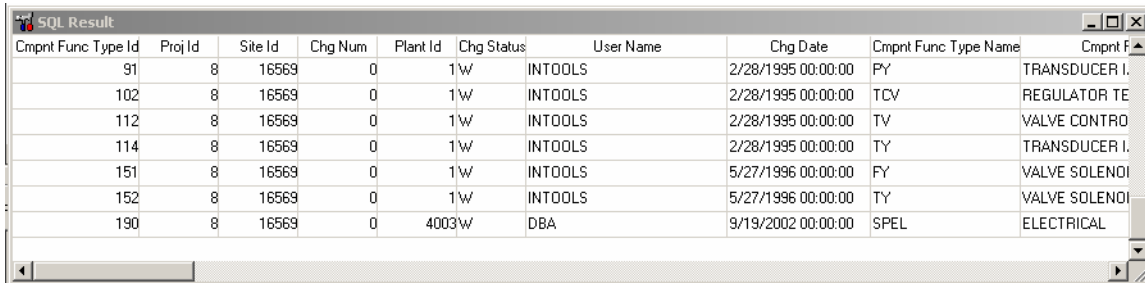
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STEP 2

2) Use Internal Setup to determine if the Virtual Tag 'placeholder' for FIELDBUS has been set

projectname.component_function_type_id = 153

SELECT * FROM component_function_type WHERE Cmpnt_Func_Type_Id < 200



Cmpnt Func Type Id	Proj Id	Site Id	Chg Num	Plant Id	Chg Status	User Name	Chg Date	Cmpnt Func Type Name	Cmpnt F
91	8	16569	0	1	W	INTOOLS	2/28/1995 00:00:00	FY	TRANSDUCER I.
102	8	16569	0	1	W	INTOOLS	2/28/1995 00:00:00	TCV	REGULATOR TE
112	8	16569	0	1	W	INTOOLS	2/28/1995 00:00:00	TV	VALVE CONTRO
114	8	16569	0	1	W	INTOOLS	2/28/1995 00:00:00	TY	TRANSDUCER I.
151	8	16569	0	1	W	INTOOLS	5/27/1996 00:00:00	FY	VALVE SOLENOI
152	8	16569	0	1	W	INTOOLS	5/27/1996 00:00:00	TY	VALVE SOLENOI
190	8	16569	0	4003	W	DBA	9/19/2002 00:00:00	SPEL	ELECTRICAL

In this example, the entry for **Cmpnt Func Type Id = 153** does not exist (and this is required for the FIELDBUS Virtual Tag).

Insert the following into your database from Internal Setup

CRITICAL NOTE 1 – **Proj_Id** and **Site_Id** will be different for your databases, and you must get the correct values for your location.

insert into component_function_type

```
(Cmpnt_Func_Type_Id,Proj_Id,Site_Id,Chg_Num,Plant_Id,Chg_Status,Use
r_Name,Cmpnt_Func_Type_Name,Cmpnt_Func_Type_Desc,Prf_Spec,Prf_
Wiring,Prf-Cs_Point,Prf_In_Line_Device,Prf_Hu_Electrical,Prf_Hu_Pneum
atic,Prf_Hu_Support,Prf_Hu_Process,Prf_Hu_Winterization,Prf_F1,Prf_F2,
Prf_F3,Prf_F4,Prf_F5,Calc_Pd_Type_Id,Dwg_External_Blkc_Id,Panel_Id,Cab
le_Id,Landing_Type_Id,Proc_Func_Id,Spec_Form_Id,Hu_Id,Hu_Type_Id,Bo
m_Include_Flag,Spec_Dwg_Id,Prf_Io_Type,Cmpnt_Io_Type_Id,Prf_Location,
Cmpnt_Loc_Id,Prf_Pd_Tag,Prf_No_Loop,Prf_Pm,Prf-Cs_Tag,Prf_Dimension
,Dim_Grp_Id,Prf_Pd_Req,Spec_Format_Id,Cstag_Func_Type_Name,Pro
c_Func_Cat_Id,Prf_Udt,Udt_Support_Id1,Udt_Support_Id2,Udt_Support_I
d3,Udt_Support_Id4,Udt_Support_Id5,Udt_Support_Id6,Udt_Support_Id7
,Udt_Support_Id8,Udt_Support_Id9,Udt_Support_Id10,Udt_Support_Id11
,Udt_Support_Id12,Udt_Support_Id13,Udt_Support_Id14,Udt_Support_Id
15,Udt_Support_Id16,Symbol_Path,Device_Type_Id)
values ('153','5','12345','0','1','W','INTOOLS','VFD','VFD VIRTUAL FIELD
DEVICE','','','','','','','','','','','0','0','0','1','0','0','0','0','0','N','','','0',
',,,,,',,,'VFD','0','','0','0','0','0','0','0','0','0','0','0','0','0','0','0',,')
```

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What does this code mean? Here is a listing of the Table Names and the appropriate values FIELD BUS

VALUES to insert into *projectname.component_function_type*

Cmpnt_Func_Type_Id	'153'	
Proj_Id	'5'	CRITICAL NOTE 1
Site_Id	'12345'	CRITICAL NOTE 1
Chg_Num	'0'	
Plant_Id	'1'	
Chg_Status	'W'	
User_Name	'FISHERB'	
Cmpnt_Func_Type_Name	'VFD'	
Cmpnt_Func_Type_Desc	'VFD VIRTUAL FIELD DEVICE'	
Prf_Spec	''	
Prf_Wiring	''	
Prf-Cs_Point	''	
Prf_In_Line_Device	''	
Prf_Hu_Electrical	''	
Prf_Hu_Pneumatic	''	
Prf_Hu_Support	''	
Prf_Hu_Process	''	
Prf_Hu_Winterization	''	
Prf_F1	''	
Prf_F2	''	
Prf_F3	''	
Prf_F4	''	
Prf_F5	''	
Calc_Pd_Type_Id	'0'	
Dwg_External_Blck_Id	'0'	
Panel_Id	'0'	
Cable_Id	'1'	
Landing_Type_Id	'0'	
Proc_Func_Id	'0'	
Spec_Form_Id	'0'	
Hu_Id	'0'	
Hu_Type_Id	'0'	
Bom_Include_Flg	'N'	
Spec_Dwg_Id	''	
Prf_Io_Type	''	
Cmpnt_Io_Type_Id	'0'	
Prf_Location	''	
Cmpnt_Loc_Id	'0'	
Prf_Pd_Tag	''	
Prf_No_Loop	''	
Prf_Pm	''	
Prf-Cs_Tag	''	

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```
Prf_Dimension          ''
Dim_Grp_Id            ''
Prf_Pd_Requir         ''
Spec_Format_Id        ''
Cstag_Func_Type_Name  'VFD'
Proc_Func_Cat_Id      '0'
Prf_Udt               ''
Udt_Support_Id1      '0'
Udt_Support_Id2      '0'
Udt_Support_Id3      '0'
Udt_Support_Id4      '0'
Udt_Support_Id5      '0'
Udt_Support_Id6      '0'
Udt_Support_Id7      '0'
Udt_Support_Id8      '0'
Udt_Support_Id9      '0'
Udt_Support_Id10     '0'
Udt_Support_Id11     '0'
Udt_Support_Id12     '0'
Udt_Support_Id13     '0'
Udt_Support_Id14     '0'
Udt_Support_Id15     '0'
Udt_Support_Id16     '0'
Symbol_Path           ''
Device_Type_Id        ''
```

You can determine your Proj_Id and Site_Id with the following from Internal Setup:

SELECT * FROM PROJECT

Proj_Id	Site_Id	Chg_Num	Chg_Status	Chg_Date	Proj_Name
0	1003	0	W	12/27/2005 00:00:00	
1	12345	0	W	10/28/2007 12:30:21	SEED_DOMAIN
2	12345	0	W	10/28/2007 13:13:24	HYDROPLANT
3	12345	0	W	10/28/2007 13:45:33	DIAMOND1
4	12345	0	W	10/29/2007 11:50:44	OFFSHORE
5	12345	0	W	11/4/2007 19:30:41	SECRET1
6	12345	0	W	11/7/2007 06:50:11	2SECRET