



Parts Identifier Database

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Reminder of the PID DB

The parts identifier (PID) database is a small reliable database that stores and delivers the PID numbers

The first four fields need to be very carefully managed across the consortia, let me call that a **ComponentTypeID, or CTID**

D/I/L/P	001-999	001-999	0001-FFFF	-	0001-FFFF	-	AA-ZZ	001-999	-	00-99	00-99	001-999
Project	System ID	Subsystem ID	Item Type ID	Dash	Item Number	Dash	Country of Origin	Responsible Institution ID	Dash	Detector ID	Final Destination	Intermediate Destination
F	F	F	F		F		F	F		M	M	M

Every entry in the hardware DB will need a PID

The PID database and service

The PID database works with the Hardware database
It will provide REST APIs to generate PIDs and automatically insert them into the Hardware database

Only defined combinations of

Project+SystemID+SubsystemID+ItemTypeID

i.e. CTIDs will be allowed – see next slide on defining these

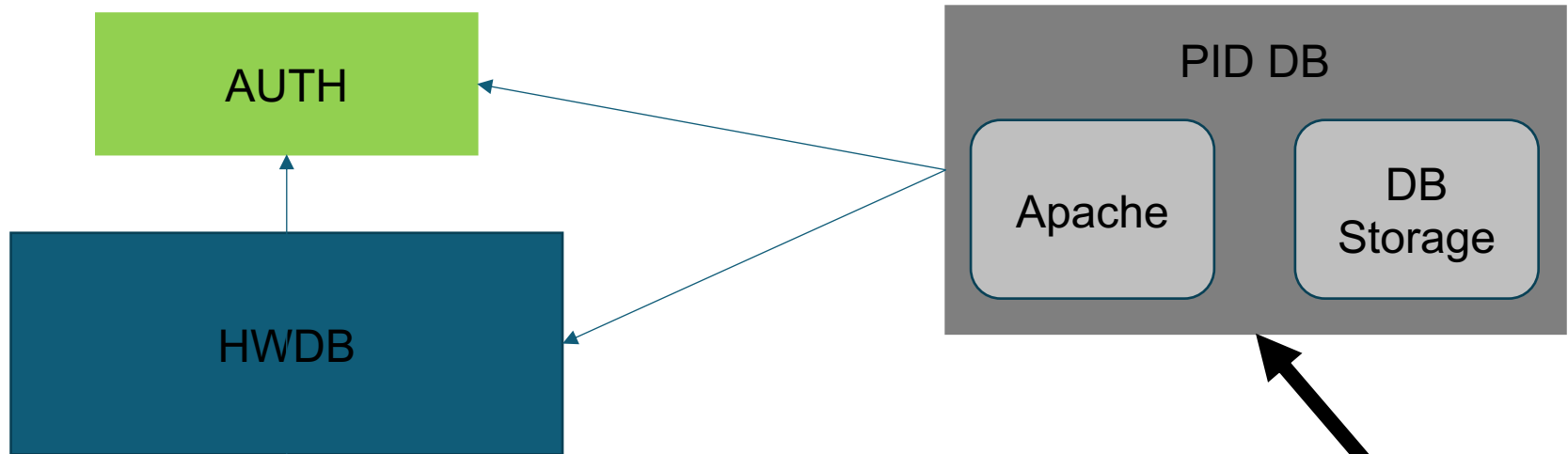
The coupling between the PID DB and the HWDB was understood to be limited to the PID (with PID DB is master)

Definitions needed from consortia

	A	B	C	D	E	F	G
1	Project	System Name	System ID	Subsystem Name	Subsystem ID	Item Name	Item Type ID
2							
3	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Completed APA	1	Top APA	1
4	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Completed APA	1	Bottom APA	2
5							
6	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	APA Frame	2	Head bar	1
7	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	APA Frame	2	Foot bar	2
8	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	APA Frame	2	High slot side bar	3
9	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	APA Frame	2	Low slot side bar	4
10	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	APA Frame	2	Ribs	5
11	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	APA Frame	2	Conduits top	6
12	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	APA Frame	2	Conduits bottom	7
13	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	APA Frame	2	Mesh panels	8
14							
15	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	X layer head board	1
16	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	X layer middle foot board	2
17	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	X layer foot board	3
18	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	U layer middle foot board	4
19	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	U layer high foot board	5
20	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	U layer low foot board	6
21	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	U layer middle side board, no slot	7
22	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	U layer middle side board, slot	8
23	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	U layer end side board	9
24	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	U layer middle head board	10
25	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	U layer left end head board	11
26	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	U layer right end head board	12
27	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	V layer middle and right head board	13
28	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	V layer left head board	14
29	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	V layer middle foot board	15
30	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	V layer end foot board	16
31	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	V layer middle side board, no slot	17
32	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	V layer middle side board, slot	18
33	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	V layer end side board	19
34	D	FD1-HD Anode Plan Assemblies (base wire planes)	3	Geometry Boards	3	G layer middle foot board	20

We need to collect the valid combinations that define DUNE Item Types (good progress has been made)

Workflow PID DB is boss (1)



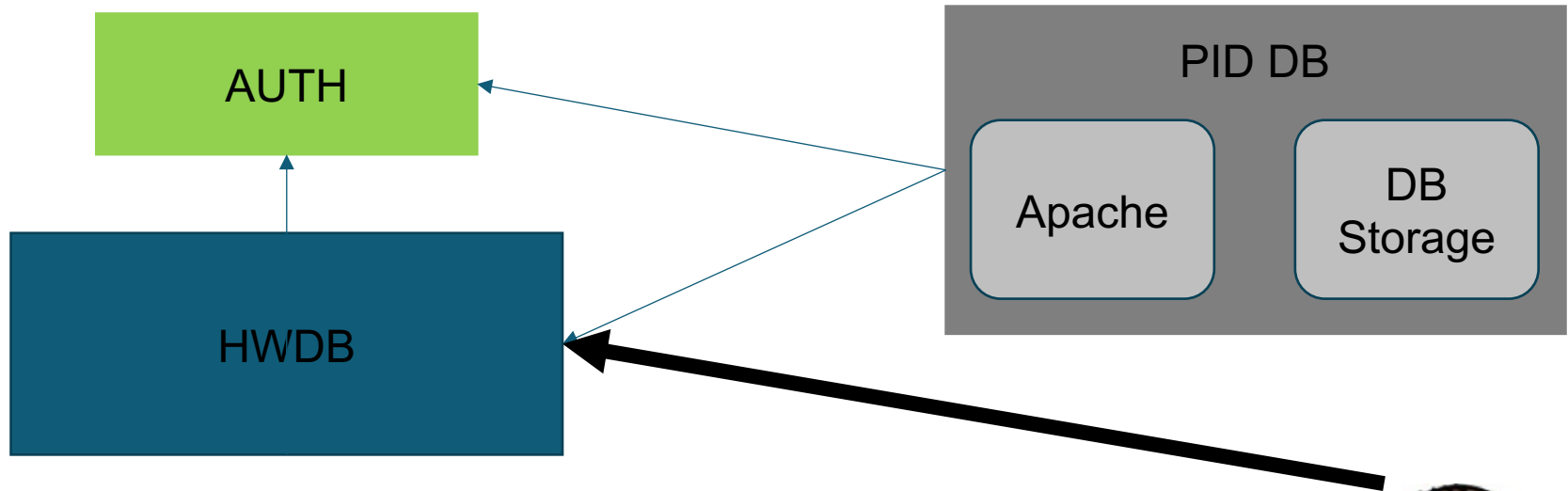
Initial injection of PIDs

Generate a PID (or several) for your ItemTypeID

These will automatically be inserted into the HWDB to make them available



Workflow PID DB is boss (2)

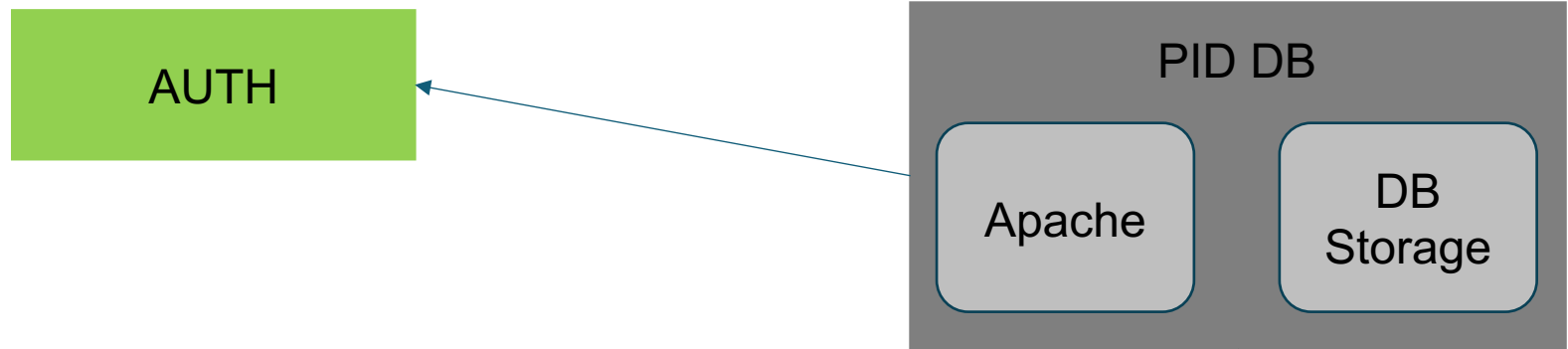


Subsequent update of parts

Interact with the HWDB to insert e.g.
QA/QC data



Workflow PID DB is boss (3)



Scanning PIDs

Ask the PID DB

Assume we still want authentication



Problem – HWDB Component Types

DUNE Components DB
DEEP UNDERGROUND NEUTRINO EXPERIMENT

Home Edit Component Type

SPECS LOG IMAGES

Component Type CPA_Parts_FR4_main

Comments FR4 Frames : Main Support Bars

Category generic

Managed by type-manager

Manufacturers Hajime Inc

Created 2021-06-24 10:46:18

Created by Alvin Zi Yuan Gooi

Version 8

Created 2021-06-24 10:46:18-05:00

Created by Alvin Zi Yuan Gooi

Datasheet

Parts ID: -1
Frame Name: Main Support Bar
Drawing Number: DFD-20-A402
Number Ordered: -1
Number Received: -1

Connections

SAVE DONE

Component Type Creation

Conceptually, a HWDB Component Type is a PID DB Item Type

We should not have multiple places where these are defined!

We *could* have the PID DB inject the full PID information into HWDB

But HWDB stores more information about Component Types, and it should be master of its fundamental objects

Propose instead to add PID DB requirements to the HWDB iff Steve and Vladimir agree!

PID and the Permanent part of the PID

The parts identifier (PID) encodes the information we need to have available, the idea being to print codes on parts

Mutable information is updated during the lifetime of the part

The permanent, immutable, part of the PID is encoded in the highlighted fields. Once created, this **PPID** should never change

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N.B. If we were happy with needing to use some app to retrieve information from the PPID, we would not need to worry about printed PIDs going out of date, we would need less room, and have more info!
That may be a big IF !

Proposal

Component Type Creation

The CTID parts of the HWDB Component Type are entered by one or two privileged users (Jim) and are locked

This ensures they obey the PID requirements managed by Jim

Once this basic information is available, it should be possible to generate PPIDs for those Component Types using the HWDB, which should then create the associated Component objects in the HWDB at the same time

The rest of the PID information needs to be completed by the consortia. Initial information could be entered when creating Component objects, efficient for bulk creation of hundreds of objects. PID information evolves with time so would need to be updated (but not the PPID !)

Additional information for Component Types can and should be added by the consortia's privileged users (e.g. Hajime, Marco, Norm...),
Component objects

Backup

PID DB Functions

GenerateID (Project, SystemID, SubsystemID, ItemTypeID)

GenerateIDBulk (...)

ListIDs (...)

GetLastItemID (...)

GetNumRemainingIDs (...)

UpdateID (PID, <info>)

ScanID (QR or Barcode)