

Database DDL file

The following are the 7 tables created. Have mentioned the constraints explicitly and have also sent a snapshot of what each table looks like.

The ids in all the tables are auto increment and generated by database. I had truncated a few tables and forgot to reset that id to 1. So the id values may look like a big number

1. CVE table

Stores data of a CVE(id, description, last modified and published date, cvss score(v2 and v3))

Primary key : id

Unique : CVE_ID (cve_id of cve from nvd database)

Index : cve_id – hash

```
CREATE TABLE public."Cve"  
(  
    cve_id text COLLATE pg_catalog."default" NOT NULL,  
    description text COLLATE pg_catalog."default",  
    last_modified date,  
    published date,  
    id integer NOT NULL DEFAULT nextval('"Cve_id_seq"::regclass),  
    cvss2_score double precision,
```

```

cvss3_score double precision,
CONSTRAINT "Cve_pkey" PRIMARY KEY (id),
CONSTRAINT "unique_CVE_id" UNIQUE (cve_id)
)

```

```
-- Index: cve_name
```

```

CREATE INDEX cve_name
ON public."Cve" USING hash
(cve_id COLLATE pg_catalog."default")
TABLESPACE pg_default;

```

cve_id text	description text	last_modified date	published date	id integer	cvss2_score double precision	cvss3_score double precision
CVE-2011-4600	The network...	2016-04-18	2016-04-14	445258	4.3	5.9
CVE-2011-4650	Cisco Data C...	2017-08-25	2017-08-07	445292	5	7.5
CVE-2011-4667	The encrypti...	2017-10-06	2017-09-25	445294	4.3	5.9
CVE-2011-4973	Authenticati...	2018-03-15	2018-02-15	445558	7.5	9.8
CVE-2011-4889	The javax.na...	2018-03-10	2018-02-08	445497	7.5	9.8
CVE-2011-4955	Multiple cro...	2018-01-05	2017-12-20	445543	4.3	6.1
CVE-2011-5320	scanf and re...	2017-11-08	2017-10-18	445885	2.1	6.2
CVE-2011-5321	The tty_ope...	2018-01-05	2016-05-02	445886	4.9	5.5
CVE-2011-5325	Directory tra...	2018-07-28	2017-08-07	445890	5	7.5
CVE-2011-5326	imlib2 befor...	2016-12-01	2016-05-13	445891	5	7.5

2. Vendor table

Stores data of a vendor (id, name)

Unique : (vendor name)

Primary key : (id)

Index : (name) - hash

```
CREATE TABLE public.vendor
(
    name text COLLATE pg_catalog."default" NOT NULL,
    id integer NOT NULL DEFAULT nextval('vendor_id_seq'::regclass),
    CONSTRAINT vendor_pkey PRIMARY KEY (id),
    CONSTRAINT vendor_name_unique UNIQUE (name)
)

-- Index: vendor_name_idx

CREATE INDEX vendor_name_idx
    ON public.vendor USING hash
    (name COLLATE pg_catalog."default")
```

TABLESPACE pg_default;

	name text	id integer
1	tritreal	41814
2	hp	41815
3	ibm	41816
4	sgi	41817
5	sun	41818
6	data_general	41819
7	isc	41820
8	bsdi	41821
9	caldera	41822
10	nec	41823
11	netbsd	41824

3. Cve affects vendor table

Stores data about vendors that are in a cve

Foreign keys –

(cve_id) references to (id) in cve table

(vendor_id) references to (id) in vendor table

Primary key : (cve_id,vendor_id)

Indexes :

(cve_id) – hash

(vendor_id) – hash

```
CREATE TABLE public.cve_affects_vendor
(
    cve_id integer NOT NULL,
    vendor_id integer NOT NULL,
    CONSTRAINT cve_affects_vendor_pkey PRIMARY KEY (cve_id, vendor_id),
    CONSTRAINT cve_affects_vendor_cve_id_fkey FOREIGN KEY (cve_id)
        REFERENCES public."Cve" (id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE CASCADE,
    CONSTRAINT cve_affects_vendor_vendor_id_fkey FOREIGN KEY (vendor_id)
        REFERENCES public.vendor (id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE CASCADE
)
```

```
-- Index: cve_id_fk
```

```
CREATE INDEX cve_id_fk
    ON public.cve_affects_vendor USING hash
    (cve_id)
    TABLESPACE pg_default;
```

```
-- Index: vendor_id_fk
```

```
CREATE INDEX vendor_id_fk
    ON public.cve_affects_vendor USING hash
    (vendor_id)
    TABLESPACE pg_default;
```

	cve_id integer	vendor_id integer
1	390189	41821
2	390189	41827
3	390189	41842
4	390190	41821
5	390190	41822
6	390190	41825
7	390191	41814
8	390191	41815
9	390191	41816
10	390191	41817
11	390191	41818

4 . **Product table**

Stores information about a product and it's vendor

(id, name, vendor_id)

Primary key – (id)

Foreign key :

(vendor_id) references (id) in vendor table

Unique :

(name,vendor_id) – A product can have same name but it must be from different vendors

Indexes :

(name) – hash

(vendor_id) – hash

```
CREATE TABLE public.product
```

```
(
```

```
  id integer NOT NULL DEFAULT nextval('product_id_seq'::regclass),
```

```
  name text COLLATE pg_catalog."default" NOT NULL,
```

```
  vendor_id integer NOT NULL,
```

```
  CONSTRAINT product_pkey PRIMARY KEY (id),
```

```
  CONSTRAINT product_name_vendor_id_key UNIQUE (name, vendor_id)
```

```
,
```

```
  CONSTRAINT product_vendor_id_fkey FOREIGN KEY (vendor_id)
```

```
    REFERENCES public.vendor (id) MATCH SIMPLE
```

```
    ON UPDATE CASCADE
```

```
    ON DELETE CASCADE
```

```
)
```

```
-- Index: product_name
```

```
CREATE INDEX product_name
```

```
  ON public.product USING hash
```

```
  (name COLLATE pg_catalog."default")
```

```
  TABLESPACE pg_default;
```

```
-- Index: vendor_id_fk_idx
```

```
CREATE INDEX vendor_id_fk_idx
```

```
  ON public.product USING hash
```

(vendor_id)

TABLESPACE pg_default;

	id integer	name text	vendor_id integer
1	3884185	ted_cde	41814
2	3884186	hp-ux	41815
3	3884187	aix	41816
4	3884188	irix	41817
5	3884189	solaris	41818
6	3884190	sunos	41818
7	3884232	dg_ux	41819
8	3884233	bind	41820
9	3884234	bsd_os	41821
10	3884235	openlinux	41822

5. Products in cve table :

Stores information about products, it's vendors that are in a cve

Foreign keys :

(cve_id) references to (id) in cve table

(vendor_id) references to (id) in vendor table

(product_id) references to (id) in product

Primary key:

(cve_id, vendor_id, product_id)

Indexes :

(cve_id) – hash

(vendor_id) – hash

(product_id) – hash

-- Table: public.products_in_cve

CREATE TABLE public.products_in_cve

(

cve_id integer NOT NULL,

vendor_id integer NOT NULL,

product_id integer NOT NULL,

CONSTRAINT products_in_cve_pkey PRIMARY KEY (cve_id, vendor_id, product_id),

CONSTRAINT products_in_cve_cve_id_fkey FOREIGN KEY (cve_id)

REFERENCES public."Cve" (id) MATCH SIMPLE

ON UPDATE CASCADE

ON DELETE CASCADE,

CONSTRAINT products_in_cve_product_id_fkey FOREIGN KEY (product_id)

REFERENCES public.product (id) MATCH SIMPLE

ON UPDATE CASCADE

ON DELETE CASCADE,

CONSTRAINT products_in_cve_vendor_id_fkey FOREIGN KEY (vendor_id)

REFERENCES public.vendor (id) MATCH SIMPLE

ON UPDATE CASCADE

ON DELETE CASCADE

)

```
-- Index: cve_id_idx  
CREATE INDEX cve_id_idx  
ON public.products_in_cve USING hash  
(cve_id)  
TABLESPACE pg_default;
```

```
-- Index: product_id_idx  
CREATE INDEX product_id_idx  
ON public.products_in_cve USING hash  
(product_id)  
TABLESPACE pg_default;
```

```
-- Index: vendor_id_idx  
CREATE INDEX vendor_id_idx  
ON public.products_in_cve USING hash  
(vendor_id)  
TABLESPACE pg_default;
```

	cve_id integer	vendor_id integer	product_id integer
1	390189	41821	3884234
2	390189	41827	3884414
3	390189	41842	3885176
4	390190	41821	3884234
5	390190	41822	3884235
6	390190	41825	3884239
7	390191	41814	3884185
8	390191	41815	3884186
9	390191	41816	3884187
10	390191	41817	3884188
11	390191	41818	3884189

6. cve affects product version table

Stores the cve_id, vendor_id, product_id and the enumerated version for a product

Foreign keys :

(cve_id) references to (id) in cve table

(vendor_id) references to (id) in vendor table

(product_id) references to (id) in product

Primary key:

(cve_id, vendor_id, product_id, version)

Indexes :

(cve_id) – hash

(vendor_id) – hash

(product_id) – hash

```
CREATE TABLE public.cve_affects_product_version
(
    cve_id integer NOT NULL,
    vendor_id integer NOT NULL,
    product_id integer NOT NULL,
    version text COLLATE pg_catalog."default" NOT NULL,
    CONSTRAINT cve_affects_product_version_pkey PRIMARY KEY (cve_id, vendor_id,
product_id, version),
    CONSTRAINT cve_affects_product_version_cve_id_fkey FOREIGN KEY (cve_id)
        REFERENCES public."Cve" (id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE CASCADE,
    CONSTRAINT cve_affects_product_version_product_id_fkey FOREIGN KEY
(product_id)
        REFERENCES public.product (id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE CASCADE,
    CONSTRAINT cve_affects_product_version_vendor_id_fkey FOREIGN KEY (vendor_id)
        REFERENCES public.vendor (id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE CASCADE
)
-- Index: cve_id_fkey_idx
CREATE INDEX cve_id_fkey_idx
```

```

ON public.cve_affects_product_version USING hash
(cve_id)
TABLESPACE pg_default;

```

```
-- Index: prod_id_fk_idx
```

```

CREATE INDEX prod_id_fk_idx
ON public.cve_affects_product_version USING hash
(product_id)
TABLESPACE pg_default;

```

```
-- Index: vendor_fk_idx
```

```

CREATE INDEX vendor_fk_idx
ON public.cve_affects_product_version USING hash
(vendor_id)
TABLESPACE pg_default;

```

	cve_id integer	vendor_id integer	product_id integer	version text
1	390189	41821	3884234	3.1
2	390189	41827	3884414	1.0
3	390189	41827	3884414	1.1
4	390189	41827	3884414	1.1.5.1
5	390189	41827	3884414	1.2
6	390189	41827	3884414	2.0
7	390189	41827	3884414	2.0.1
8	390189	41827	3884414	2.0.5
9	390189	41827	3884414	2.1.5
10	390189	41827	3884414	2.1.6

7. cpe version ranges for cve vulnerable products

Stores the cpe version ranges for a product with it's vendor and cve information

Stores cve_id, vendor_id, product_id and start_version including/excluding and end_version including/excluding

Primary Key : (id)

Foreign keys :

(cve_id) references to (id) in cve table

(vendor_id) references to (id) in vendor table

(product_id) references to (id) in product

Indexes :

(cve_id) – hash

(vendor_id) – hash

(product_id) – hash

Unique :

(cve_id, vendor_id, product_id, start_version including/excluding, end_version including/excluding)

```
CREATE TABLE public.cpe_version_ranges_for_cve_vulnerable_products
```

```
(
```

```
    id integer NOT NULL,
```

cve_id integer NOT NULL,
vendor_id integer NOT NULL,
product_id integer NOT NULL,
version_start_including text COLLATE pg_catalog."default",
version_start_excluding text COLLATE pg_catalog."default",
version_end_including text COLLATE pg_catalog."default",
version_end_excluding text COLLATE pg_catalog."default",
CONSTRAINT cpe_pkey PRIMARY KEY (id),

CONSTRAINT cpe_version_ranges_for_cve_vu_cve_id_vendor_id_product_id_v_key
UNIQUE (cve_id, vendor_id, product_id, version_start_including,
version_start_excluding, version_end_including, version_end_excluding),

CONSTRAINT cpe_cve_id_fkey FOREIGN KEY (cve_id)

REFERENCES public."Cve" (id) MATCH SIMPLE

ON UPDATE CASCADE

ON DELETE CASCADE,

CONSTRAINT cpe_product_id_fkey FOREIGN KEY (product_id)

REFERENCES public.product (id) MATCH SIMPLE

ON UPDATE CASCADE

ON DELETE CASCADE,

CONSTRAINT cpe_vendor_id_fkey FOREIGN KEY (vendor_id)

REFERENCES public.vendor (id) MATCH SIMPLE

ON UPDATE CASCADE

ON DELETE CASCADE

)

-- Index: cve_id_fk_idx

CREATE INDEX cve_id_fk_idx

ON public.cpe_version_ranges_for_cve_vulnerable_products USING hash
(cve_id)

TABLESPACE pg_default;

-- Index: product_id_fk_idx

CREATE INDEX product_id_fk_idx

ON public.cpe_version_ranges_for_cve_vulnerable_products USING hash
(product_id)

TABLESPACE pg_default;

-- Index: vendor_id_fx_version_idx

CREATE INDEX vendor_id_fx_version_idx

ON public.cpe_version_ranges_for_cve_vulnerable_products USING hash
(vendor_id)

TABLESPACE pg_default;

id integer	cve_id integer	vendor_id integer	product_id integer	version_start_including text	version_start_excluding text	version_end_including text	version_end_excludi text
122995	395993	43590	4047458	[null]	[null]	2.2	[null]
122996	396000	43471	4043368	[null]	[null]	2.0_rc1	[null]
122997	396003	42107	3991038	[null]	[null]	2.2.0	[null]
122998	396042	41938	4032488	[null]	[null]	4.0.0r6	[null]
122999	396065	42547	4022804	[null]	[null]	4.2.3	[null]
123000	396134	41911	4048558	11.5.6.0.0	[null]	11.5.6.16.53	[null]
123001	396134	41911	4048558	11.5.7.0.0	[null]	11.5.7.17.31	[null]
123002	396135	41911	4048558	11.5.6.0.0	[null]	11.5.6.16.52	[null]
123003	396135	41911	4048558	11.5.7.0.0	[null]	11.5.7.17.31	[null]