PostgreSQL As Data Integration Tool

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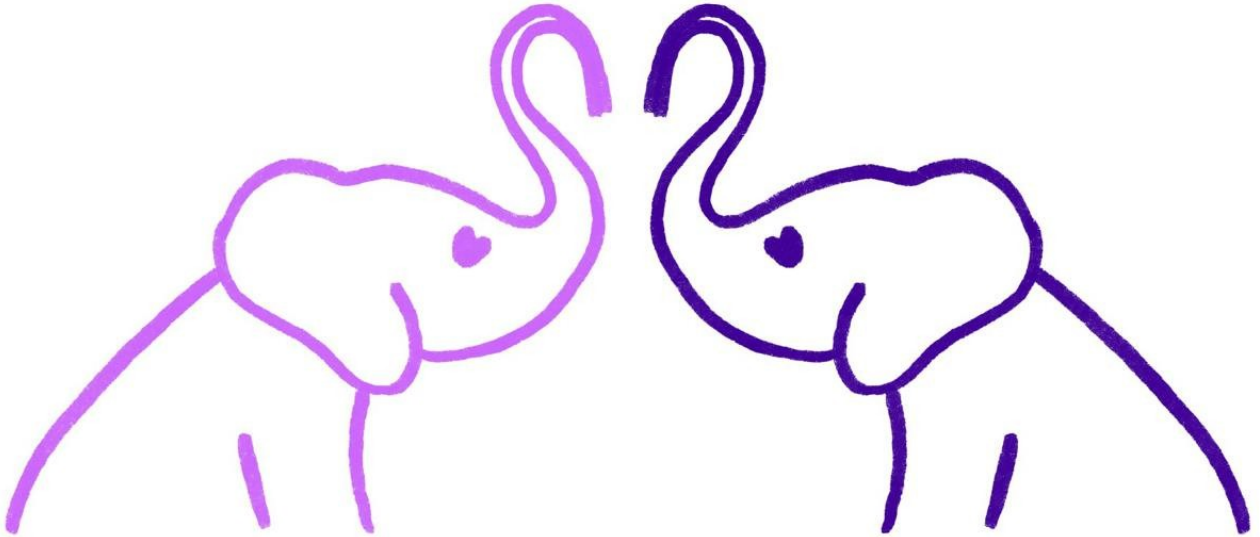

Data Integration Tools

Examples:

- Azure Data Factory
- Dell Boomi
- Informatica
- Keboola
- Pentaho Data Integration
- Qlik
- Snaplogic
- Talend Open Studio

SQL/MED

First defined 2008 in ISO/IEC 9075-9:2008

Revised 2016 in ISO/IEC 9075-9:2016

Supported by:

- DB2
- MariaDB
  With the CONNECT Storage Engine,
  the implementation differs from the standard
- PostgreSQL

PostgreSQL SQL/MED Implementation

Implementation in PostgreSQL

Foreign Data Wrapper

- Read Only
- Read and Write

The installation is realized with Extensions.

Available FDW

Examples:

- Oracle (pgxn.org)
- MS SQL Server / Sybase ASE
  read-only (pgxn.org)
- MongoDB (GitHub)
- MariaDB / MySQL (pgxn.org)
  Please use the GitHub Repository, the extension on PGXN is old.
- SQLite (GitHub)
  The version on PGXN hasn’t been updated for a while.
  There is another one (read-only) on GitHub, which is not further developed.
- Hadoop (HDFS)
  read-only (GitHub)
- ODBC (GitHub)
  There is another one on PGXN, which is not further developed.
- Apache Kafka
  read-only (GitHub)

Special FDW

- file_fdw
- postgres_fdw
- foreign_table_exposer
  - Some BI sysems have problems with foreign tables, this extentsion solves that problem.

Write Your Own FDW

Multicorn 2

With Python and Multicorn one can create foreign data wrapper and access several sources, for example:

- IMAP
- HTML

Chinook

The example data used in this talk are available by the Chinook Database:

- PostgreSQL
- CSV
- SQLite

Chinook Tables

	tablename
1	Artist
2	Invoice
3	Employee
4	Customer
5	Playlist
6	InvoiceLine
7	Album
8	Genre
9	PlaylistTrack
10	MediaType
11	Track

	table_name	column_name	data_type
1	Artist	ArtistId	integer
2	Artist	Name	character varying (120)

	table_name	column_name	data_type
1	Album	AlbumId	integer
2	Album	Title	character varying (160)
3	Album	ArtistId	integer

	table_name	column_name	data_type
1	Track	TrackId	integer
2	Track	Name	character varying (200)
3	Track	AlbumId	integer
4	Track	MediaTypeId	integer
5	Track	GenreId	integer
6	Track	Composer	character varying (220)
7	Track	Milliseconds	integer
8	Track	Bytes	integer
9	Track	UnitPrice	numeric

	GenreId	Name
1	1	Rock
2	2	Jazz
3	3	Metal
4	4	Alternative & Punk
5	5	Rock And Roll
6	6	Blues
7	7	Latin
8	8	Reggae
9	9	Pop
10	10	Soundtrack
11	11	Bossa Nova
12	12	Easy Listening
13	13	Heavy Metal
14	14	R&B/Soul
15	15	Electronica/Dance

Show Time

Slides are boring.

Examples


```
-- Create the SQLite foreign data wrapper extension in the current database
CREATE EXTENSION sqlite_fdw;
```

Examples


```
-- Important:
-- The user postgres must have read and write access
-- not only on the file but also on the folder
CREATE SERVER sqlite_server
     FOREIGN DATA WRAPPER sqlite_fdw
     OPTIONS (database '/var/sqlite/Chinook_Sqlite.sqlite')
;
```

Examples


```
-- Create a schema for the SQLite tables
CREATE SCHEMA IF NOT EXISTS sqlite;
```

Examples


```
-- Create a foreing table pointing to the SQLite database
-- The column definition must be correct to the one in SQLite
CREATE FOREIGN TABLE sqlite.artist(
     "ArtistId" integer,
     "Name" text
)
SERVER sqlite_server
OPTIONS(
     table 'Artist'
);
```

Examples


```
--  Query data
SELECT * FROM sqlite.artist;
```

	123 ArtistId	A-Z Name
1	1	AC/DC
2	2	Accept
3	3	Aerosmith
4	4	Alanis Morissette
5	5	Alice In Chains
6	6	Antônio Carlos Jobim
7	7	Apocalyptica
8	8	Audioslave
9	9	BackBeat

Examples

```
-- Join SQLite with PostgreSQL 17
SELECT artist."Name" AS album_name
     , album.title
FROM sqlite.artist AS artist
INNER JOIN public.album
     ON artist."ArtistId" = album.artist_id;
```

	album_name	title
1	AC/DC	Let There Be Rock
2	AC/DC	For Those About To Rock We Salute You
3	Accept	Restless and Wild
4	Accept	Balls to the Wall
5	Aerosmith	Big Ones
6	Alanis Morissette	Jagged Little Pill
7	Alice In Chains	Facelift
8	Antônio Carlos Jobim	Chill: Brazil (Disc 2)

Examples


```
-- Create the PostgreSQL foreign data wrapper
CREATE EXTENSION postgres_fdw;
```

Examples


```
-- Create a connection to another PostgreSQL instance
-- This one is a PostgreSQL 14
CREATE SERVER pg_localhost_chinook
        FOREIGN DATA WRAPPER postgres_fdw
        OPTIONS (host '127.0.0.1', port '5432', dbname 'chinook')
;
```

Examples


```
-- Create a user for the user mapping
CREATE USER MAPPING FOR stefanie
        SERVER pg_localhost_chinook
        OPTIONS (user 'stefanie', password 'password')
;
```

Examples


```
-- Create a schema for the foreign PostgreSQL tables
CREATE SCHEMA IF NOT EXISTS pg14;
```

Examples


```
-- Create the foreign table
IMPORT FOREIGN SCHEMA public LIMIT TO("Track")
FROM SERVER pg_localhost_chinook
INTO pg14
;
```

Examples


```
-- Show data from PostgreSQL 14
SELECT * FROM pg14."Track";
```

	123 TrackId	A-Z Name	123 AlbumId	123 MediaTypeId	123 GenreId	A-Z Composer
1	1	For Those About To Rock (We Salute You)	1	1	1	Angus Young, Malcolm Young, Brian Johnson
2	2	Balls to the Wall	2	2	1	[NULL]
3	3	Fast As a Shark	3	2	1	F. Baltes, S. Kaufman, U. Dirkscneider & W. Hoffman
4	4	Restless and Wild	3	2	1	F. Baltes, R.A. Smith-Diesel, S. Kaufman, U. Dirkscneider & W. Hoffman
5	5	Princess of the Dawn	3	2	1	Deaffy & R.A. Smith-Diesel
6	7	Let's Get It Up	1	1	1	Angus Young, Malcolm Young, Brian Johnson
7	8	Inject The Venom	1	1	1	Angus Young, Malcolm Young, Brian Johnson
8	9	Snowballed	1	1	1	Angus Young, Malcolm Young, Brian Johnson
9	10	Evil Walks	1	1	1	Angus Young, Malcolm Young, Brian Johnson

Examples

```
-- Join SQLite and PostgreSQL tables
SELECT artist."Name"
     , album.title
     , track."Name"
FROM sqlite.artist AS artist
INNER JOIN public.album
     ON artist."ArtistId" = album.artist_id
INNER JOIN pg14."Track" AS track
     ON album.album_id = track."AlbumId"
;
```

	A-Z Name	A-Z title	A-Z Name
1	AC/DC	Let There Be Rock	Whole Lotta Rosie
2	AC/DC	Let There Be Rock	Hell Ain't A Bad Place To Be
3	AC/DC	Let There Be Rock	Overdose
4	AC/DC	Let There Be Rock	Problem Child
5	AC/DC	Let There Be Rock	Bad Boy Boogie
6	AC/DC	Let There Be Rock	Let There Be Rock
7	AC/DC	Let There Be Rock	Dog Eat Dog
8	AC/DC	Let There Be Rock	Go Down

Examples


```
-- Update data in a foreign table
UPDATE pg14."Track" SET
     "Name" = 'Der Track Name ist geändert!'
WHERE "TrackId" = 6;
```

Examples

```sql
-- Show the changed data
SELECT *
FROM pg14."Track"
WHERE "TrackId" = 6;
```

	123 TrackId	A-Z Name	123 AlbumId	123 MediaTypeId	123 GenreId	A-Z Composer
1	6	Der Track Name ist geändert!	1	1	1	Angus Young, Malcolm Young, Brian Johnson

Examples


```
-- Update data in a foreign table
UPDATE pg14."Track" SET
"Name" = 'Der Track Name ist geändert!'
WHERE "TrackId" = 6;
```

Examples


```sql
-- Show the changed data
SELECT *
FROM pg14."Track"
WHERE "TrackId" = 6;
```

Examples


```
-- Update data in a foreign table
UPDATE pg14."Track" SET
"Name" = 'Put The Finger On You'
WHERE "TrackId" = 6;
```

Examples


```sql
-- Show the changed data
SELECT *
FROM pg14."Track"
WHERE "TrackId" = 6;
```

Examples

```
-- Create the file extension
CREATE EXTENSION file_fdw;
```

Examples


```
-- It does need a server object, that can be used forall CSV files
-- The user postgres must have read and write access
-- not only on the file but also on the folder
CREATE SERVER chinook_csv
FOREIGN DATA WRAPPER file_fdw
;
```

Examples


```
-- Create a schema for the CSV files
CREATE SCHEMA IF NOT EXISTS CSV;
```

Examples


```
-- Create a foreign table based on a CSV file
-- The options are the same as of the COPY command
CREATE FOREIGN TABLE csv.genre (
     "GenreId" integer,
     "Name" text
) SERVER chinook_csv
OPTIONS (
     filename '/var/sqlite/Genre.csv',
     format 'csv',
     HEADER 'true'
);
```

Examples


```
-- Show data
SELECT * FROM csv.genre;
```

	123 GenreId	A-Z Name
1	1	Rock
2	2	Jazz
3	3	Metal
4	4	Alternative & Punk
5	5	Rock And Roll
6	6	Blues
7	7	Latin
8	8	Reggae
9	9	Pop

Examples

```
-- Join data from SQLite, zwei PostgreSQL Servern, and
-- a CSV file
SELECT artist."Name"
     , album.title
     , track."Name"
     , genre."Name"
FROM sqlite.artist AS artist
INNER JOIN public.album
     ON artist."ArtistId" = album.artist_id
INNER JOIN pg14."Track" AS track
     ON album.album_id = track."AlbumId"
INNER JOIN csv.genre AS genre
     ON track."GenreId" = genre."GenreId"
;
```

	A-Z Name	A-Z title	A-Z Name	A-Z Name
1	AC/DC	Let There Be Rock	Whole Lotta Rosie	Rock
2	AC/DC	Let There Be Rock	Hell Ain't A Bad Place To Be	Rock
3	AC/DC	Let There Be Rock	Overdose	Rock
4	AC/DC	Let There Be Rock	Problem Child	Rock
5	AC/DC	Let There Be Rock	Bad Boy Boogie	Rock
6	AC/DC	Let There Be Rock	Let There Be Rock	Rock

Examples


```
-- Create a materialized view with foreign tables
CREATE MATERIALIZED VIEW mv_album_artist AS
WITH album AS
     (
          SELECT artist_id
                    , array_agg(title) AS album_titles
          FROM public.album
          GROUP BY artist_id
     )
SELECT artist."Name" AS artist
     , album.album_titles
     , SUM(ARRAY_LENGTH(album_titles, 1))
FROM sqlite.artist AS artist
LEFT OUTER JOIN album
     ON artist."ArtistId" = album.artist_id
GROUP BY artist."Name"
     , album.album_titles
;
```

Examples

```
-- Show data
SELECT *
FROM mv_album_artist
WHERE upper(artist) LIKE 'A%'
ORDER BY artist
;
```

	A-Z artist	album_titles	123 sum
1	Aaron Copland & London Symphony Orchestra	A Copland Celebration, Vol. I	1
2	Aaron Goldberg	Worlds	1
3	Academy of St. Martin in the Fields Chamber Ensemble & Sir Neville Marriner	Sir Neville Marriner: A Celebration	1
4	Academy of St. Martin in the Fields, John Birch, Sir Neville Marriner & Sylvia McNair	Fauré: Requiem, Ravel: Pavane & Others	1
5	Academy of St. Martin in the Fields & Sir Neville Marriner	The World of Classical Favourites	1
6	Academy of St. Martin in the Fields, Sir Neville Marriner & Thurston Dart	Bach: Orchestral Suites Nos. 1 - 4	1
7	Academy of St. Martin in the Fields, Sir Neville Marriner & William Bennett	NULL	[NULL]
8	Accept	Balls to the Wall [+1]	2

Examples


```
-- Create the Multicorn extension
CREATE EXTENSION multicorn;
```

Examples


```
-- Create a server, it is only a place holder
CREATE SERVER rss_srv foreign data wrapper multicorn options (
    wrapper 'multicorn.rssfdw.RssFdw'
)
;
```

Examples


```
-- Create a schema for the multicorn tables
CREATE SCHEMA IF NOT EXISTS multicorn;
```

Examples


```
-- Create a foreign table based on a RSS feed
CREATE FOREIGN TABLE multicorn.rss_mi2nbandnews (
     title text,
     link text,
     description text,
     "pubDate" TIMESTAMPTZ,
     guid text
) server rss_srv OPTIONS (
     url 'https://www.visions.de/feeds/news.rss'
)
;
```

Examples

```
-- Show data from an RSS feed directly queried from the web
SELECT *
FROM multicorn.rss_mi2nbandnews;
```

	title	link	description	pubDate	guid
1	Sólstafir: 2x2 Konzerttickets zu ge	https://www.visions.de/verlc	<p>Die isländische Post-Metal	2025-05-06 15:50:43.000 +0200	https://www.visions.de/?p
2	Killswitch Engage kündigen erste E	https://www.visions.de/news	<p>Nachdem Killswitch Engag	2025-05-06 15:12:43.000 +0200	https://www.visions.de/?p
3	Singer-Songwriterin Jill Sobule bei	https://www.visions.de/news	<p>Folk-Pop-Singer/Songwrite	2025-05-06 13:50:28.000 +0200	https://www.visions.de/?p
4	John Coffey gehen im November a	https://www.visions.de/news	<p>Ende des Jahres sind John	2025-05-06 13:29:20.000 +0200	https://www.visions.de/?p
5	Baxter Dury kündigt neues Album	https://www.visions.de/news	<p>Baxter Dury veröffentlicht	2025-05-06 12:38:35.000 +0200	https://www.visions.de/?p
6	André 3000 veröffentlicht überras	https://www.visions.de/news	<p>Ex-Outkast-Rapper André	2025-05-06 12:15:31.000 +0200	https://www.visions.de/?p
7	The Mars Volta und ihr neues Albu	https://www.visions.de/featu	<p>Ende Januar wird das neue	2025-05-06 11:44:32.000 +0200	https://www.visions.de/?p
8	Jacknife Lee über Britpop: »Das Ma	https://www.visions.de/news	<p>Starproduzent Jacknife Lee	2025-05-06 11:40:37.000 +0200	https://www.visions.de/?p
9	Skegss spielen kostenloses Akustil	https://www.visions.de/news	<p>Vor ihrer morgigen Show i	2025-05-06 11:02:21.000 +0200	https://www.visions.de/?p
10	Alle Alben der Donots im Ranking	https://www.visions.de/featu	<p>Die Donots sind echt. Eine	2025-05-05 16:40:18.000 +0200	https://www.visions.de/?p

Examples


```
-- Join the RSS data with an existing table
SELECT a."Name" AS artist
     , r.*
FROM multicorn.rss_mi2nbandnews AS r
INNER JOIN sqlite.artist AS a
     ON r.description ilike '%' || a."Name" || '%'
;
```

	artist	title	link	description	pubDate	guid
1	Lost	Sólstafir: 2x2 Konzerttickets zu gewinnen!	https://www.visions.de/verlosungen/s	<p>Die isländische Post-Metal-Bar	2025-05-06 15:50:43.000 +0200	https://www.visions.de/?p=496444
2	JET	The Mars Volta und ihr neues Album "Luci	https://www.visions.de/features/story	<p>Ende Januar wird das neue Alb	2025-05-06 11:44:32.000 +0200	https://www.visions.de/?p=496388

Examples


```sql
-- Create a materialized view
CREATE MATERIALIZED VIEW multicorn.rss_mi2nbandnews_mv AS
SELECT ROW_NUMBER() OVER() AS rn
     , r.title
     , r.link
     , r.description
     , r."pubDate" AS data_publication
     , r.guid
FROM multicorn.rss_mi2nbandnews AS r;
```

Examples


```
-- Create a unique index on the materialized view
CREATE UNIQUE INDEX rss_mi2nbandnews_mv_udx
     ON multicorn.rss_mi2nbandnews_mv
     USING btree
          (
               rn
          );
```

Examples

```
-- Show data
SELECT *
FROM multicorn.rss_mi2nbandnews_mv
;
```

	123 rn	A-Z title	A-Z link	A-Z description	data_publication	A-Z guid
1	1	Kneecap-Eklat: Billy Bragg	https://www.visions.de/news/billy-bragg-aeussert-sich-	<p>Singer/Songwriter Billy Bragg hat ein Sta	2025-05-06 15:56:09.000 +0200	https://www.visions.de/?p=496435
2	2	Sólstafir: 2x2 Konzertticke	https://www.visions.de/verlosungen/solstafir-konzertti	<p>Die isländische Post-Metal-Band Sólstafi	2025-05-06 15:50:43.000 +0200	https://www.visions.de/?p=496444
3	3	Killswitch Engage kündige	https://www.visions.de/news/killswitch-engine-this-con	<p>Nachdem Killswitch Engage nach der Ve	2025-05-06 15:12:43.000 +0200	https://www.visions.de/?p=496423
4	4	Singer-Songwriterin Jill So	https://www.visions.de/news/jill-sobule-ist-tot/	<p>Folk-Pop-Singer/Songwriterin Jill Sobule	2025-05-06 13:50:28.000 +0200	https://www.visions.de/?p=496413
5	5	John Coffey gehen im Nov	https://www.visions.de/news/john-coffey-im-november	<p>Ende des Jahres sind John Coffey wieder	2025-05-06 13:29:20.000 +0200	https://www.visions.de/?p=496420
6	6	Baxter Dury kündigt neue	https://www.visions.de/news/baxter-dury-neues-album	<p>Baxter Dury veröffentlicht mit “A	2025-05-06 12:38:35.000 +0200	https://www.visions.de/?p=496380
7	7	André 3000 veröffentlicht	https://www.visions.de/news/andre-3000-veroeffentlicl	<p>Ex-Outkast-Rapper André 3000 bringt ol	2025-05-06 12:15:31.000 +0200	https://www.visions.de/?p=496379
8	8	The Mars Volta und ihr ne	https://www.visions.de/features/storys-und-interviews/	<p>Ende Januar wird das neue Album von Tl	2025-05-06 11:44:32.000 +0200	https://www.visions.de/?p=496388
9	9	Jacknife Lee über Britpop:	https://www.visions.de/news/jacknife-lee-britpop-war-c	<p>Starproduzent Jacknife Lee lässt seinen	2025-05-06 11:40:37.000 +0200	https://www.visions.de/?p=496390
10	10	Skegss spielen kostenlose	https://www.visions.de/news/skegss-kostenlose-akustil	<p>Vor ihrer morgigen Show in Berlin spiele	2025-05-06 11:02:21.000 +0200	https://www.visions.de/?p=496378

Examples


```
-- Link the RSS data in the materialized view with a table
SELECT a."Name" AS artist
     , r.*
FROM multicorn.rss_mi2nbandnews_mv AS r
INNER JOIN sqlite.artist AS a
     ON r.description ilike '%' || a."Name" || '%'
;
```

	artist	rn	title	link	description	data_publication	guid
1	JET	8	The Mars Volta und ihr neues Alb	https://www.visions.de/features/story:	<p>Ende Januar wird das neue Album von T	2025-05-06 11:44:32.000 +0200	https://www.visions.de/?p=496388
2	Lost	2	Sólstafir: 2x2 Konzerttickets zu ge	https://www.visions.de/verlosungen/s	<p>Die isländische Post-Metal-Band Sólsta	2025-05-06 15:50:43.000 +0200	https://www.visions.de/?p=496444

Examples


```
-- Create a cron extension to schedule refreshs
CREATE EXTENSION pg_cron;
```

Examples


```
-- This table is used to log cron calls
CREATE TABLE cron.log (
     log_id bigserial NOT NULL,
     time_stamp_begin timestamp WITH time ZONE NOT NULL,
     time_stamp_end timestamp WITH time ZONE NOT NULL,
     executed text NOT NULL,
     CONSTRAINT log_pk PRIMARY KEY (log_id)
);
```

Examples


```
-- Create a procedure to refresh and log the call
CREATE OR REPLACE PROCEDURE refresh_every_minute() AS $$
DECLARE
     ts_start timestamp WITH time ZONE DEFAULT current_timestamp;
BEGIN
     -- Refresh the materialized view
     REFRESH MATERIALIZED VIEW CONCURRENTLY multicorn.rss_mi2nbandnews_mv;

     -- Add a log entry
     INSERT INTO cron.log (executed, time_stamp_begin, time_stamp_end)
     VALUES (
          'REFRESH MATERIALIZED VIEW CONCURRENTLY multicorn.rss_mi2nbandnews_mv',
          ts_start,
          current_timestamp
     );
END;
$$
LANGUAGE plpgsql
;
```

Examples


```
-- Create a cron job inside PostgreSQL that will refresh the
-- Materialized view with RSS feed data every one minute
INSERT INTO cron.job (schedule, command, nodename, nodeport, database, username)
VALUES (
     '* * * * *',
     'CALL refresh_every_minute()',
     '',
     5435,
     'chinook',
     'postgres'
);
```

Examples

```
-- Show the cron job
SELECT *
FROM cron.job;
```

	jobid	schedule	command	nodename	nodepor	databas	username	active	jobname
1	1	* * * * *	CALL refresh_every_minute()		5.435	chinook	postgres	[v]	[NULL]

Examples

```
-- Show the cron execution in the log table
SELECT *
FROM cron.log;
```

	log_id	time_stamp_begin	time_stamp_end	executed
1	1	2025-05-06 16:14:00.022 +0200	2025-05-06 16:14:00.022 +0200	REFRESH MATERIALIZED VIEW CONCURRENTLY multicorn.rss_mi2nbandnews_mv

Examples

```
-- Show the cron execution in the log table
SELECT *
FROM cron.log;
```

	log_id	time_stamp_begin	time_stamp_end	executed
1	1	2025-05-06 16:14:00.022 +0200	2025-05-06 16:14:00.022 +0200	REFRESH MATERIALIZED VIEW CONCURRENTLY multicorn.rss_mi2nbandnews_mv
2	2	2025-05-06 16:15:00.022 +0200	2025-05-06 16:15:00.022 +0200	REFRESH MATERIALIZED VIEW CONCURRENTLY multicorn.rss_mi2nbandnews_mv
3	3	2025-05-06 16:16:00.020 +0200	2025-05-06 16:16:00.020 +0200	REFRESH MATERIALIZED VIEW CONCURRENTLY multicorn.rss_mi2nbandnews_mv
4	4	2025-05-06 16:17:00.025 +0200	2025-05-06 16:17:00.025 +0200	REFRESH MATERIALIZED VIEW CONCURRENTLY multicorn.rss_mi2nbandnews_mv

Examples


```
-- With the job id one can cancle a cron job
SELECT cron.unschedule(1);
```

Examples


```
-- Create another foreign table from a RSS feed
CREATE FOREIGN TABLE multicorn.rss_postgresql_events (
     title text,
     link text,
     description text,
     "pubDate" TIMESTAMPTZ,
     guid text
) server rss_srv OPTIONS (
     url 'https://www.postgresql.org/events.rss'
);
```

Examples

```
-- Show the upcoming PostgreSQL events
SELECT title
     , "pubDate"::DATE AS "Conference Start Date"
     , description
FROM multicorn.rss_postgresql_events
WHERE "pubDate"::DATE > NOW()::DATE
ORDER BY "pubDate" ASC
;
```

	A-Z title	Conference Start Date	A-Z description
1	PG Day France 2025¶	2025-06-03	¶<p>The PG Day France is the annual conference of the Frenc
2	POSETTE: An Event for Postgres 2025¶	2025-06-10	¶<p><a href="https://posetteconf.com/2025/">POSETTE: An E
3	Swiss PGDay 2025¶	2025-06-26	¶<p>The Swiss PostgreSQL Conference. Take the opportunity t
4	FOSSY 2025¶	2025-07-31	¶<p>FOSSY (Free and Op
5	pgDay México 2025¶	2025-08-01	¶<p>pgDay Mexico is an international event that will take plac
6	PGConf.Brazil 2025¶	2025-09-03	¶<p>The Brazilian PostgreSQL conference, also known as PGC
7	PGDay Austria 2025¶	2025-09-04	¶<p>PGDay Austria is back! Sa
8	PGDay Napoli 2025¶	2025-09-25	¶<p>The first edition of PGDay Napoli is a one-day PostgreSQL
9	PGDay Israel 2025¶	2025-10-19	¶<p>For the eighth time in Israel PostgreSQL enthusiast from
10	PostgreSQL Development Conference 2026 (pgconf.dev)	2026-05-19	¶<p>PostgreSQL Development Conference 2026¶PGConf.dev

Link List

Slides and source codes are available on GitLab and GitHub:

https://gitlab.com/sjstoelting/talks/

https://github.com/sjstoelting/talks/

PostgreSQL As Data Integration Tool

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