

Welcome

Mastering the future - together.

Db2 for i

from the comfort of your VS Code



i and me - IT Training and Solutions GmbH

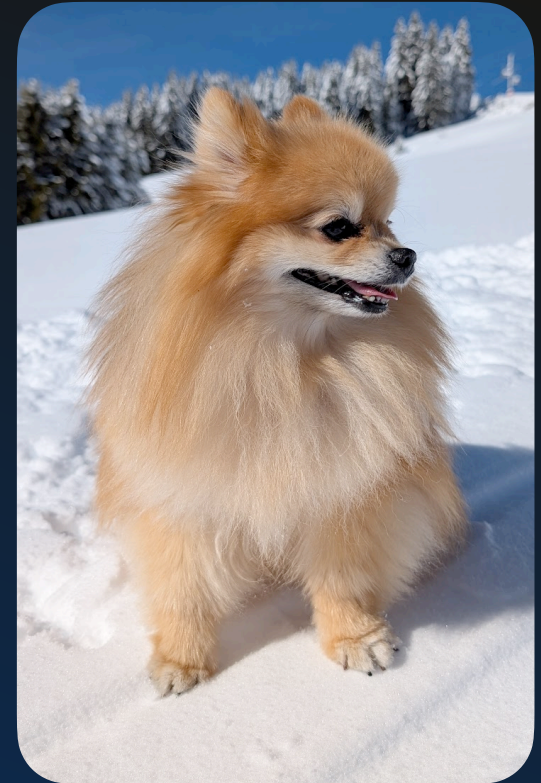
www.iandme.rocks



Who's this guy?

- Sébastien “Seb” Julliand
- Code for IBM i *core team* member
- IBM i Pipeline Steps Jenkins plugin core maintainer
- IBM Champion since 2024
- R&D Tech Lead at i and me - Training and consulting

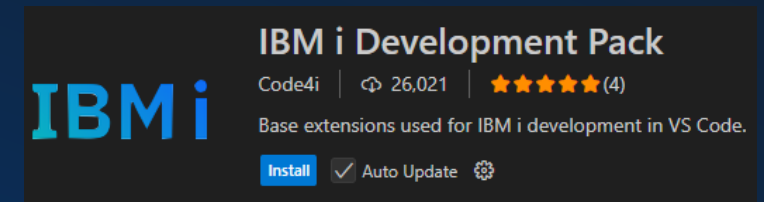
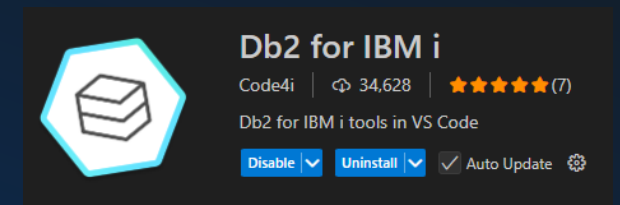
- *Dog sold separately*





Db2 for IBM i VS Code extension

- Open source project
- Owned by the community-driven Code4i organization
- Maintained by the community (non-IBMers and IBMers alike)
- Requires Code for IBM i
- Uses Mapepire undercover
- <https://codefori.github.io/docs/extensions/db2i/>

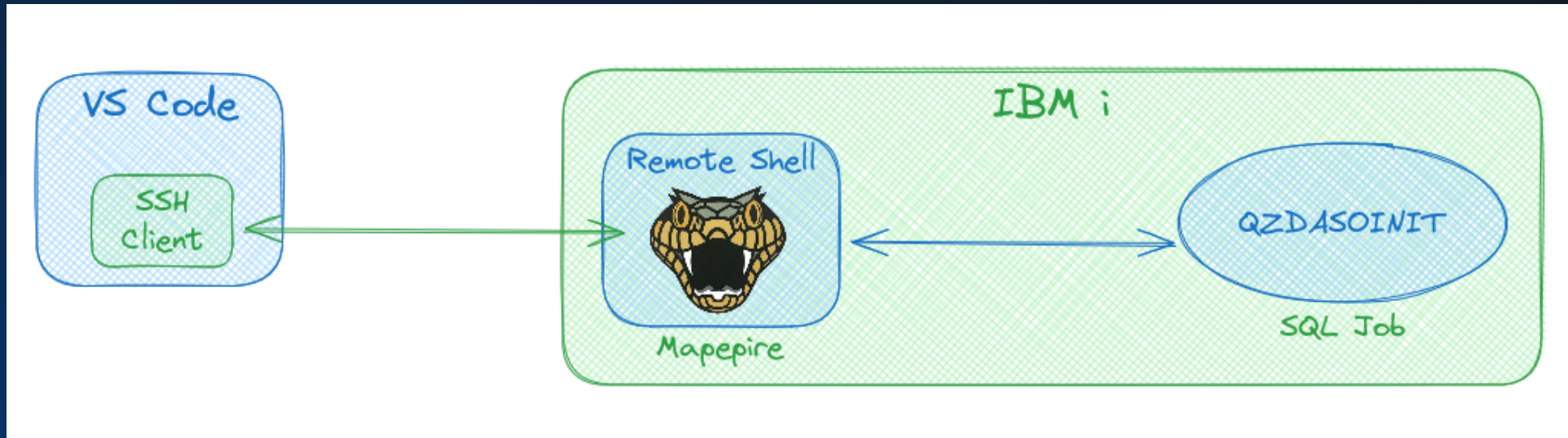




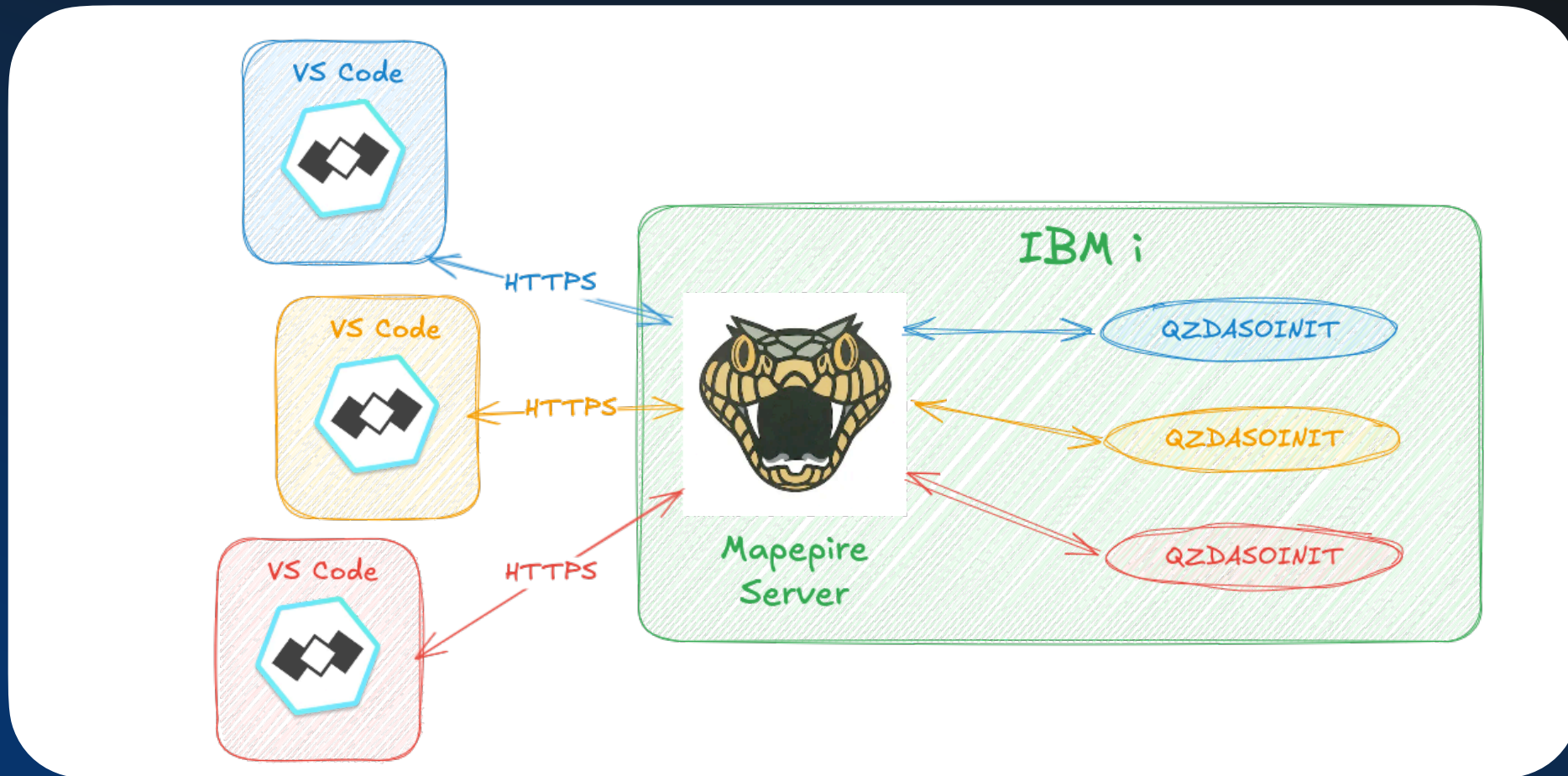
Mapepire undercover

- Automatically installed/updated by Code for IBM i v3
- Spawns a persistent DB job (QZDASOINIT)
- Single mode: reads/responds on standard shell I/O
- Server mode: one server job that spawns several DB Jobs

How Mapepire works in Single Mode

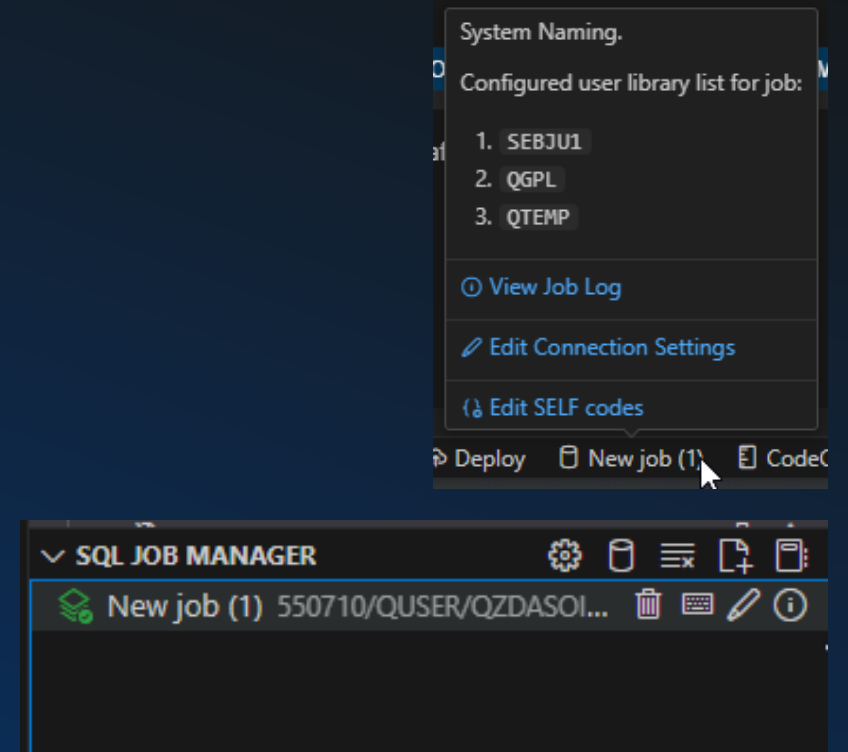


How Mapepire works in Server Mode



Db2 for i - Job Manager

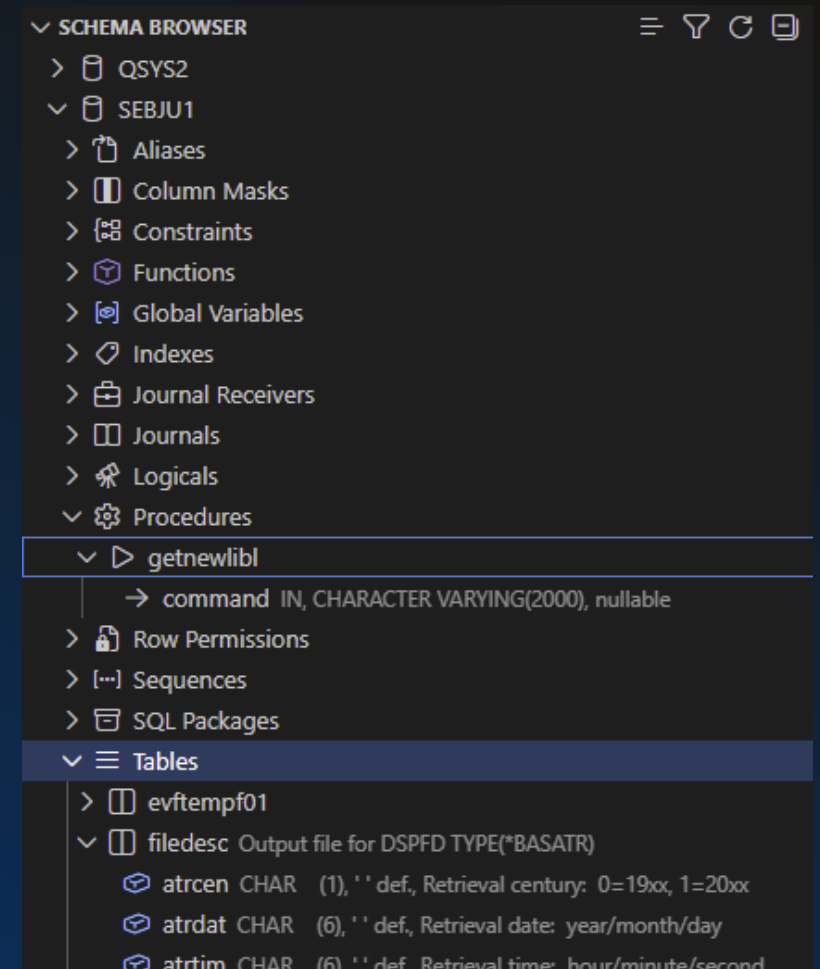
- Spawn / kill DB job
- Change JDBC settings
- Save and reuse
- Display job log
- Change SELF level
- Get traces





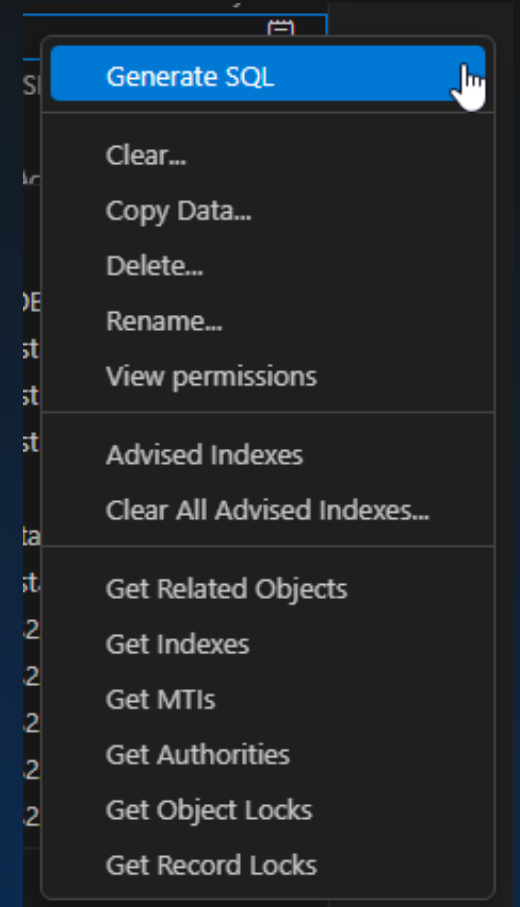
Db2 for i - Schema Browser

- Browse SQL objects
- Generate SQL
- Delete
- View...
- Permissions
- Authorities
- Locks



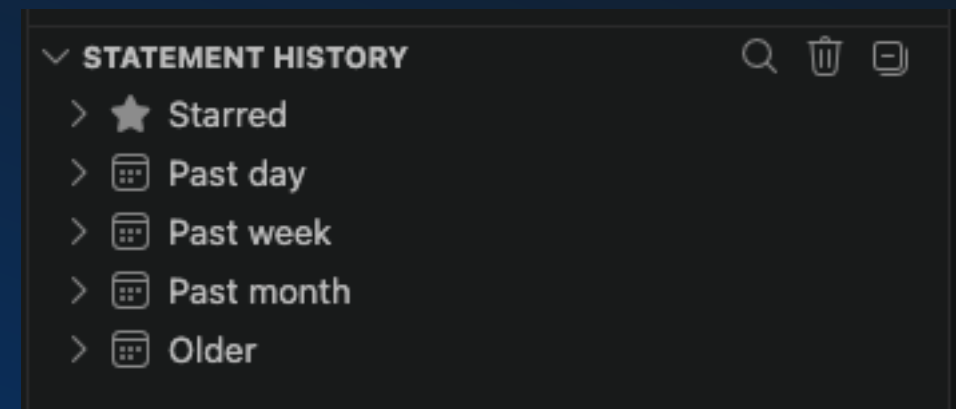
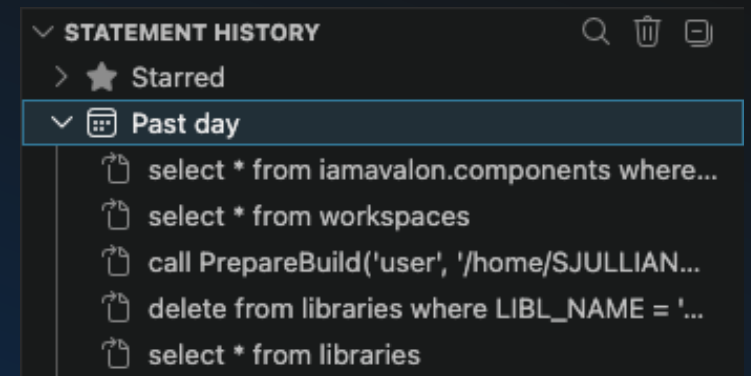
Db2 for i - Schema Browser - Tables

- Display content (aka. *Select ** shortcut)
- Specific actions
- Clear (CLRPFM)
- Copy Data (CPYF)
- Advised/Maintained Temporary indexes
- ...



Db2 for i - Statements history

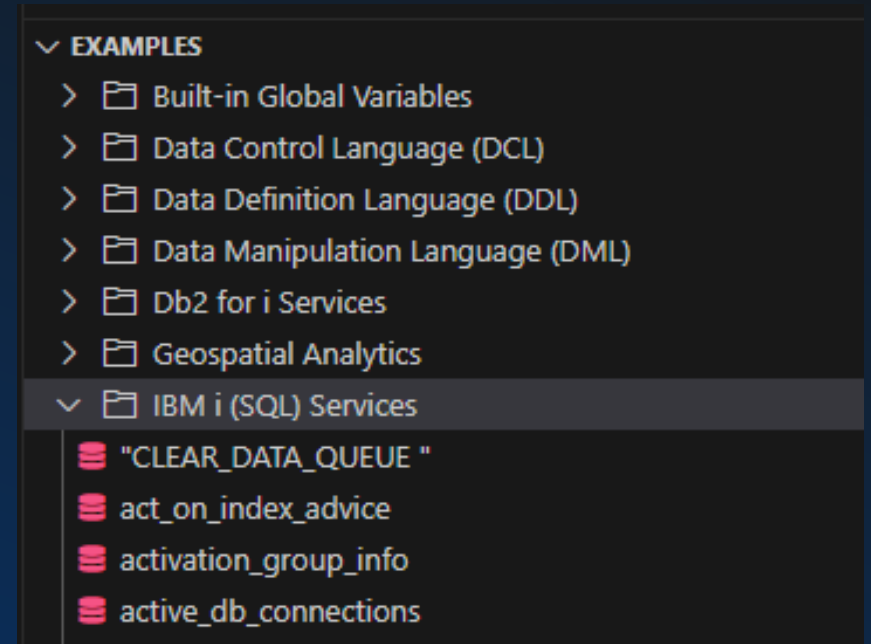
- Past executed statements
- Stored by LPAR and ...
 - Week
 - Month
 - Older
- Star favorite statements





Db2 for i - Examples

- Browse built-in examples
- List available services
- “IBM I (SQL) Services” node is dynamic
 - `select SERVICE_NAME, EXAMPLE from qsys2.services_info`
- Add custom examples
 - Linked to a local folder
 - Not connection dependent



Db2 for i - Running Queries - Basics

- Open an SQL type document
- Execute statements
 - Ctrl/Cmd + R
 - Run menu
- Syntax checker
- Content assist

```
1  Select * from QSYS2.job
```

- job_description_info
- job_queue_info
- job_description_info
- job_info** function
- job_lock_info
- job_queue_info

```
1  Select bind_user, from QSYS2.netstat_info;
```

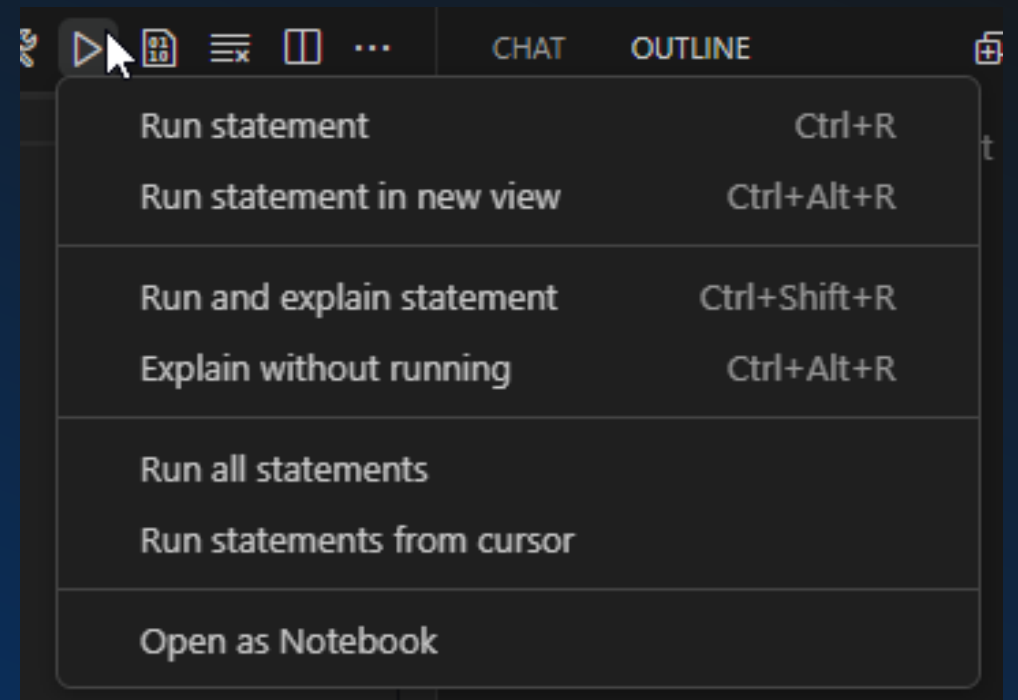
- NETSTAT_INFO: All Colu... All columns for table: NETS...
- bind_user
- bytes_received_locally
- bytes_sent_remotely



Token FR was not valid. Valid tokens: FROM INTO. - 42601 (SQL0104)
 View Problem (Alt+F8) No quick fixes available

Db2 for i - Running Queries - Run Menu

- Accessible from the top menu “play” button
 - Run / Run selected / Run all / Run from cursor
 - Run and open in new view
 - Visual Explain
 - Open as Notebook

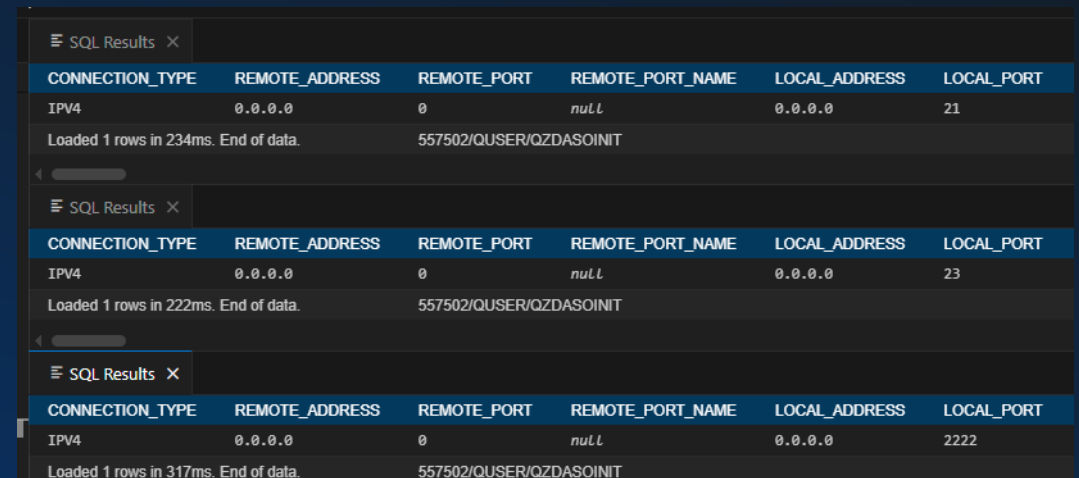


Db2 for i - Running Queries - Result Set

- Located at the bottom by default
- Can be opened in a new view
- Column name and/or label as heading
- Columns are resizable

Connection Type	Remote Address	Remote Port	Remote Port Name	Local Address	Local Port
IPV4	0.0.0.0	0	nuLL	0.0.0.0	21
IPV4	0.0.0.0	0	nuLL	0.0.0.0	23

CONNECTION_TYPE	REMOTE_ADDRESS	REMOTE_PORT	REMOTE_PORT_NAME	LOCAL_ADDRESS	LOCAL_PORT
IPV4	0.0.0.0	0	nuLL	0.0.0.0	21
IPV4	0.0.0.0	0	nuLL	0.0.0.0	23



The screenshot shows three stacked 'SQL Results' windows. Each window displays a table with the following columns: CONNECTION_TYPE, REMOTE_ADDRESS, REMOTE_PORT, REMOTE_PORT_NAME, LOCAL_ADDRESS, and LOCAL_PORT. The data rows are as follows:

- Window 1: Shows two rows. The first row has LOCAL_PORT 21, and the second row has LOCAL_PORT 23.
- Window 2: Shows one row with LOCAL_PORT 21.
- Window 3: Shows one row with LOCAL_PORT 2222.

Each window also includes a status bar at the bottom indicating 'Loaded 1 rows in [time]ms. End of data.' and the user '557502/QUSER/QZDASOINIT'.



Db2 for i - Running Queries - Prefixes

- Prefix statement to change the output
 - csv: open results in CSV format
 - json: open results in JSON format
 - update: run query, turn on editable cells (⚠ table must be qualified)
 - cl: run a CL command in the SQL job
 - sql: generate insert statement from results
 - rpg: generate a data-structure to receive a select result
 - udtf: generate the skeleton for a user-defined table function based on a select
 - md: generate a Markdown table from a select result

Db2 for i - Running Queries - Bindings

- Write a single query
- Execute with different values
- Binds to ? And :var markers
- Lookup the most previous statement in the document to bind to when executed
- Usage:

```
Select * From MY_TABLE Where COL1 = ? And COL2 = ?;  
bind: 'val1' 'val2'  
bind: 'val1_bis' 'val2_bis'
```



Db2 for i - Running Queries - Syntax Checking

- Available when connected
- Configured through user settings

SQL Syntax Options

Check Interval

Time between editing (ms) and sending a request to syntax check on the server

Check On Edit

Whether the syntax checker should run automatically when the document is edited

Check On Open

If enabled, will check the syntax of the SQL file when it is opened

Show Warnings

Whether SQL syntax warnings should show in the editor

Use System Names

Whether to use system names for columns in the content assist

Db2 for i - Running Queries - Content assist

- Available when connected
- Hover over procedure/function to get description
- Ctrl+space to show content assist
- List schema content

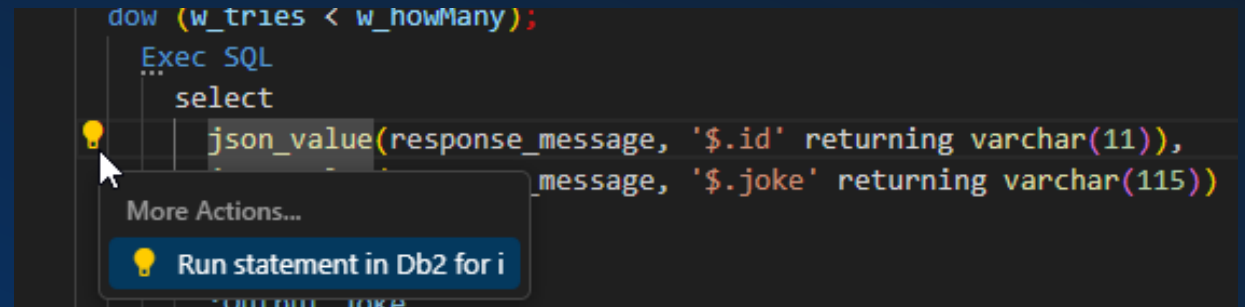
```
select * from QSYS2.  
users  
validate_pending_replication_criteria  
verify_name  
watch_detail  
watch_info  
workload_group_info  
workstation_info  
job_name  
process_id  
replication_override  
server_mode_job_name  
thread_id
```

```
QSYS2.object_statistics()  
object_schema  
objtypelist  
object_name
```

```
(QSYS2.object_statistics('', 'ALL'))  
object_statistics(  
  object_schema => character varying(258),  
  objtypelist => character varying(812),  
  object_name => character varying(258)  
) : 70 columns  
  
@param object_schema name, *ALL, *ALLAVL, *ALLSIMPLE, *ALLUSR, *ALLUSRAVL, *CURLIB, *LIBL, *USRLIBL - Default: none  
@param objtypelist *ALL or list of system object types separated by blanks or commas - Default: none  
@param object_name name, *ALLSIMPLE - Default: NULL  
  
Search on IBM Documentation
```

Db2 for i - Running Queries - From RPG

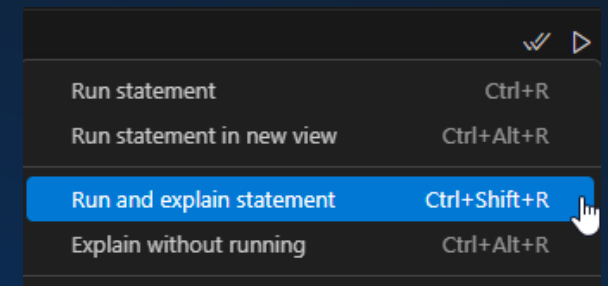
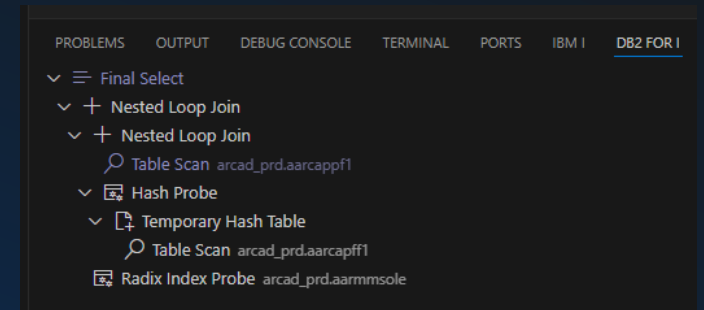
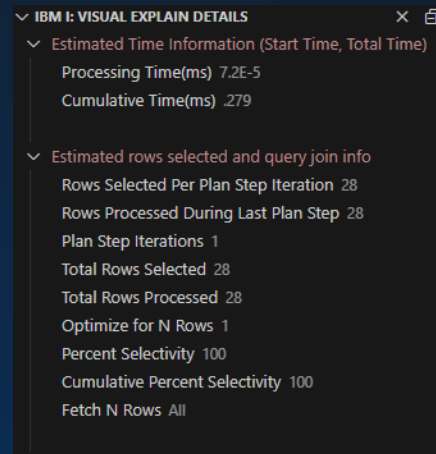
- Works for Exec SQL select statements
- Click on the statement and click on the light bulb
- Opens a new SQL document with the selected query



```
dow (w_tries < w_howMany);  
  Exec SQL  
  ...  
  select  
  ...  
  json_value(response_message, '$.id' returning varchar(11)),  
  ...  
  message, '$.joke' returning varchar(115))  
  ...  
:OUTPUT, JOKE
```

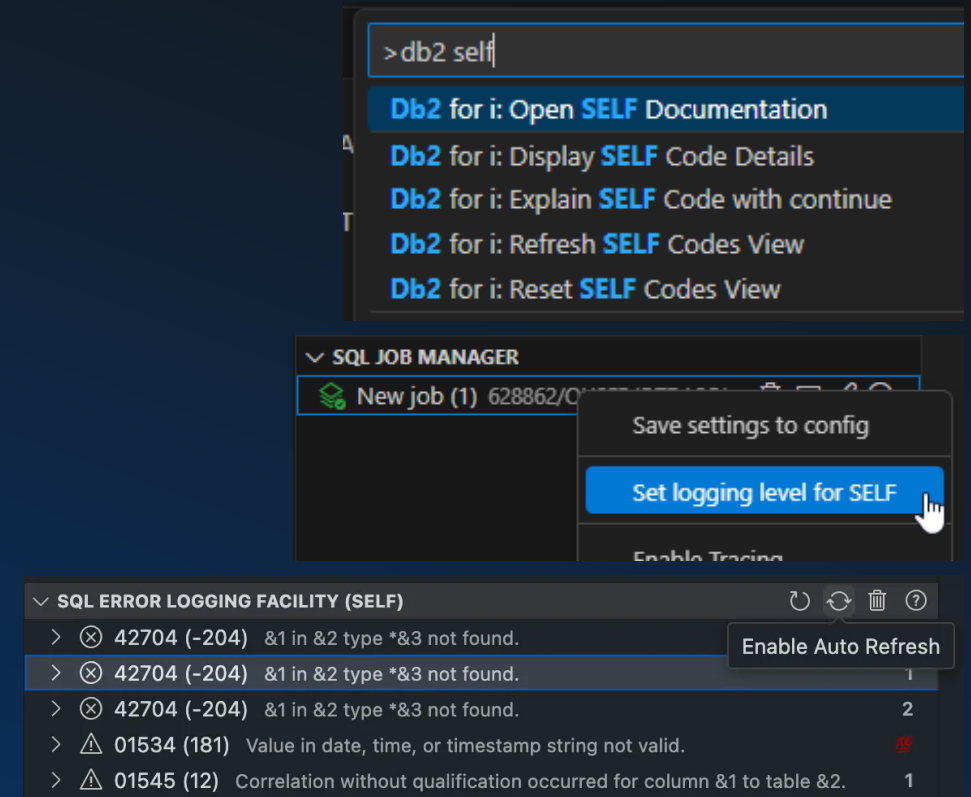
Db2 for i - Visual Explain

- From the Run SQL statement menu
 - Explain
 - Run and explain
- Opens in a separate treeview
- Details in a separate view
- Access advised indexes
- Export as JSON



Db2 for i - SELF

- Requires 7.6 / 7.5 TR1 / 7.4 TR7
- Turned on at system or job level
- SELF view refresh
 - On demand
 - Periodically



The screenshot shows the Db2 for i SELF interface. At the top, a command prompt shows the command `> db2 self` being entered. Below this, a dropdown menu lists several options: "Db2 for i: Open SELF Documentation", "Db2 for i: Display SELF Code Details", "Db2 for i: Explain SELF Code with continue", "Db2 for i: Refresh SELF Codes View", and "Db2 for i: Reset SELF Codes View".

Below the dropdown, the "SQL JOB MANAGER" section is visible, showing a "New job (1) 628862/0". A context menu is open over this job, with options "Save settings to config" and "Set logging level for SELF". A mouse cursor is pointing at the "Set logging level for SELF" option.

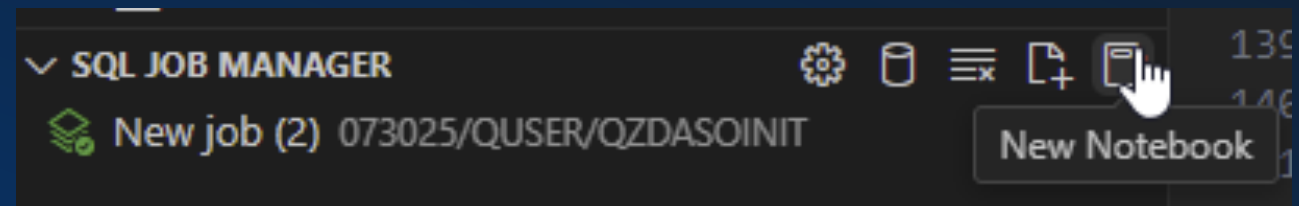
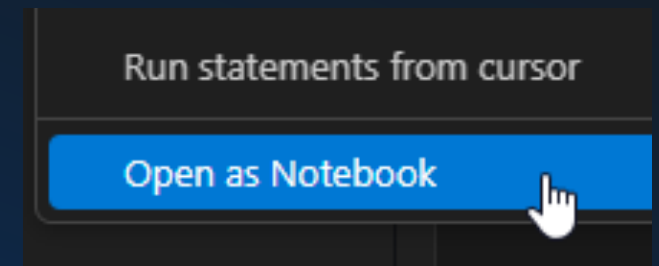
At the bottom, the "SQL ERROR LOGGING FACILITY (SELF)" section is shown. It contains a table of error logs:

Message ID	Text	Count
42704 (-204)	&1 in &2 type *&3 not found.	1
42704 (-204)	&1 in &2 type *&3 not found.	2
01534 (181)	Value in date, time, or timestamp string not valid.	1
01545 (12)	Correlation without qualification occurred for column &1 to table &2.	1

At the top right of the error log table, there are icons for refresh, auto refresh, and help. A tooltip "Enable Auto Refresh" is visible over the auto refresh icon.

Db2 Notebooks

- <https://codefori.github.io/docs/extensions/db2i/#notebooks>
- .inb file
 - Stores both content and output(s)
- Mix markdown and statements/commands
 - SQL
 - CL
 - shell
- Table or graph output





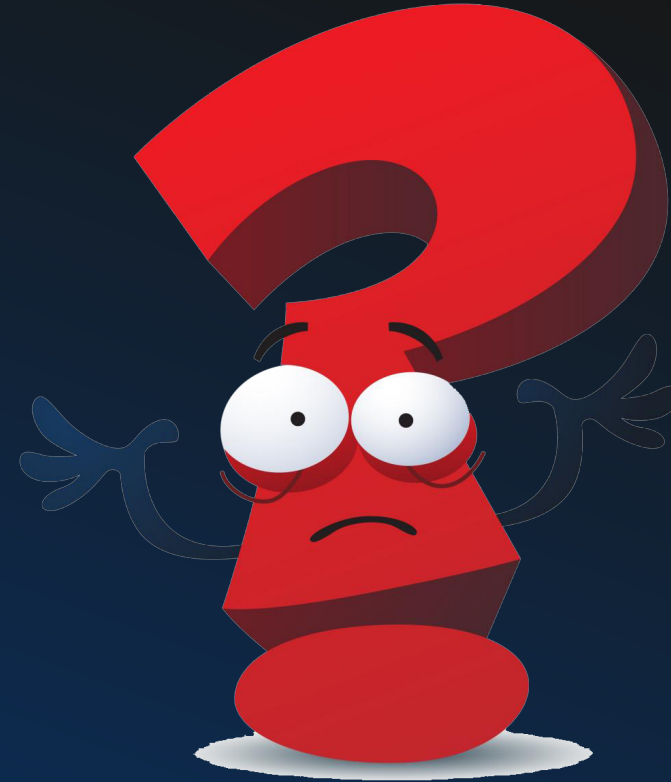
Db2 for i - AI Integration

- <https://codefori.github.io/docs/extensions/db2i/ai/code-assistant>
- Integrates with GitHub Copilot or Continue
- Db2 for i code assistant integration
 - @db2i GitHub Copilot chat participant
 - @Db2i Continue context provider
- Prompt enrichment
 - Identifies database object references in the prompt
 - Retrieves metadata
 - Add metadata to the prompt



Any questions?

Don't be shy!





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THANK YOU

For your attention.

Any Question? info@iandme.rocks

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