

# Creating a pgAgent Job

pgAgent is a scheduling agent that runs and manages jobs; each job consists of steps and schedules.

To create or manage a job, use the pgAdmin tree control to browse to the server on which the pgAgent database objects were created. The tree control will display a *pgAgent Jobs* node, under which currently defined jobs are displayed. To add a new job, right click on the *pgAgent Jobs* node, and select *Create pgAgent Job...* from the context menu.

When the pgAgent dialog opens, use the tabs on the *pgAgent Job* dialog to define the steps and schedule that make up a pgAgent job.

The screenshot shows the 'Create - pgAgent Job' dialog box. The 'General' tab is active. The 'Name' field contains 'pgAgent\_Job1'. The 'Enabled?' toggle switch is turned on. The 'Job class' dropdown menu is set to 'Routine Maintenance'. Below this dropdown is a note: 'Please select a class to categorize the job. This option will not affect the way the job runs.' The 'Host agent' field is empty, with a note below it: 'Enter the hostname of a machine running pgAgent if you wish to ensure only that machine will run this job. Leave blank if any host may run the job.' The 'Comment' field is a large empty text area. At the bottom right are three buttons: 'Close', 'Reset', and 'Save'.

Use the fields on the *General* tab to provide general information about a job:

- Provide a name for the job in the *Name* field.
- Move the *Enabled* switch to the *Yes* position to enable a job, or *No* to disable a job.
- Use the *Job Class* drop-down to select a class (for job categorization).
- Use the *Host Agent* field to specify the name of a machine that is running pgAgent to indicate that only that machine may execute the job. Leave the field blank to specify that any machine may perform the job.

## Note

It is not always obvious what value to specify for the Host Agent in order to target a job step to a specific machine. With pgAgent running on the required machines and connected to the scheduler database, you can use the following query to view the hostnames as reported by each agent:

```
SELECT jagstation FROM pgagent.pga_jobagent
```

Use the hostname exactly as reported by the query in the Host Agent field.

- Use the *Comment* field to store notes about the job.

The screenshot shows a window titled "Create - pgAgent Job" with four tabs: "General", "Steps", "Schedules", and "SQL". The "Steps" tab is selected. It contains a table with the following columns: "Name", "Enabled?", "Kind", "Connection type", and "On error". There is a "+" icon in the top right corner of the table area. The table has one row with the following values: "step1" (with edit and delete icons to its left), a blue toggle switch for "Enabled?", "SQL", "Local", and "Fail" (with a dropdown arrow to its right). At the bottom of the window, there are three buttons: "Close", "Reset", and "Save".

Name	Enabled?	Kind	Connection type	On error
step1	<input checked="" type="checkbox"/>	SQL	Local	Fail

Use the *Steps* tab to define and manage the steps that the job will perform. Click the Add icon (+) to add a new step; then click the compose icon (located at the left side of the header) to open the step definition dialog:

**Create - pgAgent Job**

General **Steps** Schedules SQL

Name	Enabled?	Kind	Connection type	On error
step1	<input checked="" type="checkbox"/>	SQL	Local	Fail

General **Code**

Name: step1

Enabled?: ☒

Kind: ☒ SQL ☐ Batch

Connection type: ☒ Local ☐ Remote

Select **Local** if the job step will execute on the local database server, or **Remote** to specify a remote database server.

Database: postgres

Please select the database on which the job step will run.

Connection string:

Please specify the connection string for the remote database server. Each parameter setting is in the form keyword = value. Spaces around the equal sign are optional. To write an empty value, or a value containing spaces, surround it with single quotes, e.g., keyword = 'a value'. Single quotes and backslashes within the value must be escaped with a backslash, i.e., ' and \.

For more information, please see the documentation on libpq connection strings.

On error: Fail

Comment:

Close Reset Save

Use fields on the step definition dialog to define the step:

- Provide a name for the step in the *Name* field; please note that steps will be performed in alphanumeric order by name.
- Use the *Enabled* switch to include the step when executing the job (*True*) or to disable the step (*False*).
- Use the *Kind* switch to indicate if the job step invokes SQL code (*SQL*) or a batch script (*Batch*).
  - If you select *SQL*, use the *Code* tab to provide SQL code for the step.
  - If you select *Batch*, use the *Code* tab to provide the batch script that will be executed during the step.

Note

The fields *Connection type*, *Database* and *Connection string* are only applicable when *SQL* is selected because *Batch* cannot be run on remote servers.

- Use the *Connection type* switch to indicate if the step is performed on a local server (*Local*) or on a remote host (*Remote*). If you specify a remote connection should be used for the step, the *Connection string* field will be enabled, and you must provide a libpq-style connection string.
- Use the *Database* drop-down to select the database on which the job step will be performed.
- Use the *Connection string* field to specify a libpq-style connection string to the remote server on which the step will be performed. For more information about writing a connection string, please see the [PostgreSQL documentation](#).
- Use the *On error* drop-down to specify the behavior of pgAgent if it encounters an error while executing the step. Select from:
  - *Fail* - Stop the job if you encounter an error while processing this step.
  - *Success* - Mark the step as completing successfully, and continue.
  - *Ignore* - Ignore the error, and continue.
- Use the *Comment* field to provide a comment about the step.

Create - pgAgent Job

General Steps Schedules SQL

Name	Enabled?	Kind	Connection type	On error
step1	<input checked="" type="checkbox"/>	SQL	Local	Fail

General Code

```
1 BEGIN
2 PERFORM 1;
3 END;
```





Close Reset Save

Use the context-sensitive field on the step definition dialog's *Code* tab to provide the SQL code or batch script that will be executed during the step:

- If the step invokes SQL code, provide one or more SQL statements in the *SQL query* field.
- If the step performs a batch script, provide the script in the *Script* field. If you are running on a Windows server, standard batch file syntax must be used. When running on a Linux server, any shell script may be used, provided that a suitable interpreter is specified on the first line (e.g. *#!/bin/sh*).

When you've provided all of the information required by the step, click the compose icon to close the step definition dialog. Click the add icon (+) to add each additional step, or select the *Schedules* tab to define the job schedule.

The screenshot shows a dialog box titled "Create - pgAgent Job" with four tabs: "General", "Steps", "Schedules", and "SQL". The "Schedules" tab is selected. It features a table with columns: "Name", "Enabled?", "Start", and "End". There is a "+" icon in the top right corner of the table area. Below the table, there are three buttons: "Close", "Reset", and "Save".

	Name	Enabled?	Start	End
 	schedule1	<input checked="" type="checkbox"/>	2021-10-01 12:00 	2021-10-01 12:00 

Click the Add icon (+) to add a schedule for the job; then click the compose icon (located at the left side of the header) to open the schedule definition dialog:

The screenshot shows the 'Create - pgAgent Job' window with the 'Schedules' tab selected. At the top, there are tabs for 'General', 'Steps', 'Schedules', and 'SQL'. Below these is a table with columns: Name, Enabled?, Start, and End. The table contains one entry: 'schedule1', which is enabled (toggle switch is on), and has a start time of '2021-10-01 12:00:00 +05:30' and an end time of '2021-10-02 12:00:00 +05:30'. Below the table, there are sub-tabs: 'General', 'Repeat', and 'Exceptions'. The 'General' sub-tab is active, showing the same details for 'schedule1': Name (schedule1), Enabled? (toggle on), Start (2021-10-01 12:00:00 +05:30), End (2021-10-02 12:00:00 +05:30), and a Comment field. At the bottom, there are buttons for 'Close', 'Reset', and 'Save'.

Use the fields on the schedule definition tab to specify the days and times at which the job will execute.

- Provide a name for the schedule in the *Name* field.
- Use the *Enabled* switch to indicate that pgAgent should use the schedule (*Yes*) or to disable the schedule (*No*).
- Use the calendar selector in the *Start* field to specify the starting date and time for the schedule.
- Use the calendar selector in the *End* field to specify the ending date and time for the schedule.
- Use the *Comment* field to provide a comment about the schedule.

Select the *Repeat* tab to define the days on which the schedule will execute.

**Create - pgAgent Job**

General Steps **Schedules** SQL

Name	Enabled?	Start	End
schedule1	<input checked="" type="checkbox"/>	2021-10-01 12:00:00	2021-10-02 1

General **Repeat** Exceptions

**Schedules are specified using a cron-style format.**  
 For each selected time or date element, the schedule will execute.  
 e.g. To execute at 5 minutes past every hour, simply select '05' in the Minutes list box.  
 Values from more than one field may be specified in order to further control the schedule.  
 e.g. To execute at 12:05 and 14:05 every Monday and Thursday, you would click minute 05, hours 12 and 14, and weekdays Monday and Thursday.  
 For additional flexibility, the Month Days check list includes an extra Last Day option. This matches the last day of the month, whether it happens to be the 28th, 29th, 30th or 31st.

**Days**

Week Days: Monday x Thursday x Saturday x

Month Days: 4th x 6th x 9th x

Months: January x April x August x

**Times**

Hours: 06 x

Minutes: 30 x

Close Reset Save

Use the fields on the *Repeat* tab to specify the details about the schedule in a cron-style format. The job will execute on each date or time element selected on the *Repeat* tab.

Click within a field to open a list of valid values for that field; click on a specific value to add that value to the list of selected values for the field. To clear the values from a field, click the X located at the right-side of the field.

Use the fields within the *Days* box to specify the days on which the job will execute:

- Use the *Week Days* field to select the days on which the job will execute.
- Use the *Month Days* field to select the numeric days on which the job will execute. Specify the *Last Day* to indicate that the job should be performed on the last day of the month, irregardless of the date.

- Use the *Months* field to select the months in which the job will execute.

Use the fields within the *Times* box to specify the times at which the job will execute:

- Use the *Hours* field to select the hour at which the job will execute.
- Use the *Minutes* field to select the minute at which the job will execute.

Select the *Exceptions* tab to specify any days on which the schedule will *not* execute.

The screenshot shows the 'Create - pgAgent Job' dialog box with the 'Schedules' tab selected. Below the 'Schedules' tab, there is a table with columns: Name, Enabled?, Start, and End. The first row shows 'schedule1' with the 'Enabled?' toggle checked, and start/end dates of '2021-10-01 1' and '2021-11-01' respectively. Below this, the 'Exceptions' tab is selected, showing a table with columns: Date and Time. The first row shows the date '2021-10-05' and the time '18:00'. At the bottom of the dialog, there are buttons for 'Close', 'Reset', and 'Save'.

Name	Enabled?	Start	End
schedule1	<input checked="" type="checkbox"/>	2021-10-01 1	2021-11-01

Date	Time
2021-10-05	18:00

Use the fields on the *Exceptions* tab to specify days on which you wish the job to not execute; for example, you may wish for jobs to not execute on national holidays.

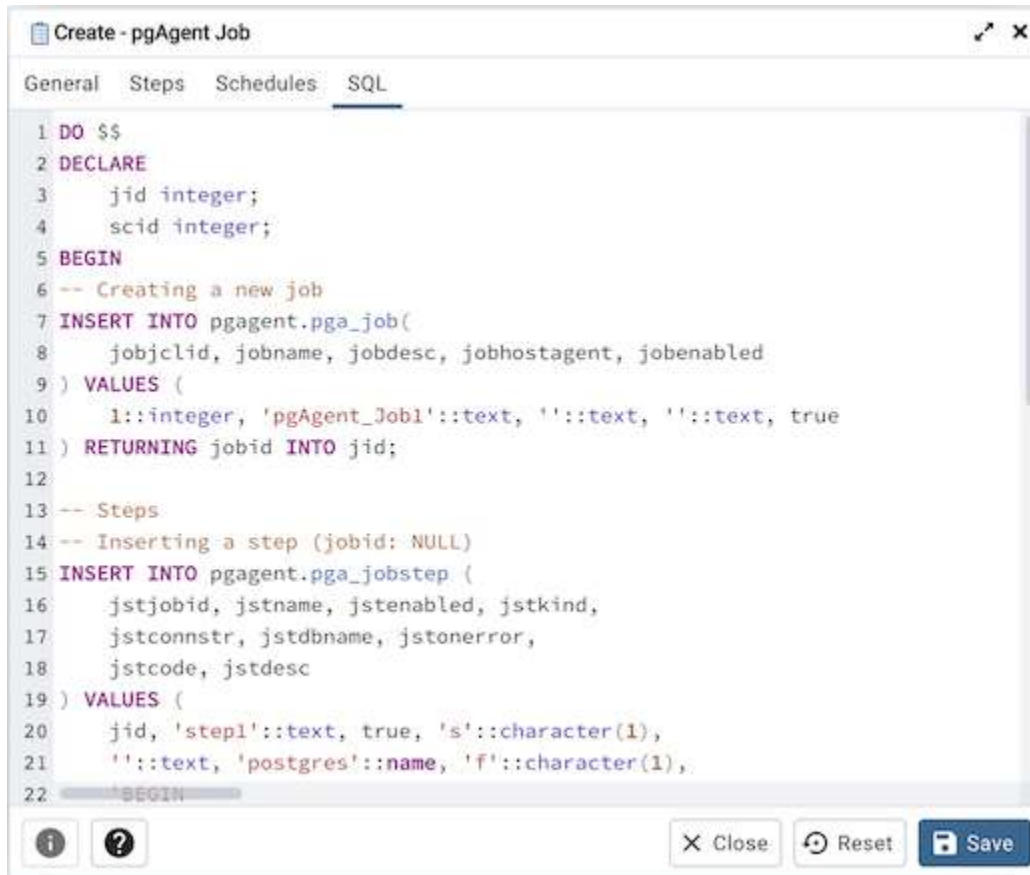
Click the Add icon (+) to add a row to the exception table, then:

- Click within the *Date* column to open a calendar selector, and select a date on which the job will not execute. Specify *<Any>* in the *Date* column to indicate that the job should not execute on any day at the time selected.



- Click within the *Time* column to open a time selector, and specify a time on which the job will not execute. Specify <Any> in the *Time* column to indicate that the job should not execute at any time on the day selected.

When you've finished defining the schedule, you can use the *SQL* tab to review the code that will create or modify your job.



```

1 DO $$
2 DECLARE
3     jid integer;
4     scid integer;
5 BEGIN
6 -- Creating a new job
7 INSERT INTO pgagent.pga_job(
8     jobclid, jobname, jobdesc, jobhostagent, jobenabled
9 ) VALUES (
10     1::integer, 'pgAgent_Job1'::text, ''::text, ''::text, true
11 ) RETURNING jobid INTO jid;
12
13 -- Steps
14 -- Inserting a step (jobid: NULL)
15 INSERT INTO pgagent.pga_jobstep (
16     jstjobid, jstname, jstenabled, jstkind,
17     jstconnstr, jstdbname, jstonerror,
18     jstcode, jstdesc
19 ) VALUES (
20     jid, 'step1'::text, true, 's'::character(1),
21     ''::text, 'postgres'::name, 'f'::character(1),
22     ''::text, ''
23 )
24 END;

```

Click the *Save* button to save the job definition, or *Close* to exit the job without saving. Use the *Reset* button to remove your unsaved entries from the dialog.

After saving a job, the job will be listed under the *pgAgent Jobs* node of the pgAdmin tree control of the server on which it was defined. The *Properties* tab in the main pgAdmin window will display a high-level overview of the selected job, and the *Statistics* tab will show the details of each run of the job.

Dashboard Properties SQL Statistics Dependencies Dependents

General

Name

pgAgent\_job1

ID

4

Enabled?

Yes

Job class

Routine Maintenance

Host agent

Created

2019-02-11 11:29:23.557053+05:30

Changed

2019-02-11 11:29:23.557053+05:30

Next run

Last run

Last result

Unknown

Running at

Not running currently.

Comment

To modify an existing job or to review detailed information about a job, right-click on a job name, and select *Properties* from the context menu.