

CAST Storage Service - Post installation information and action items

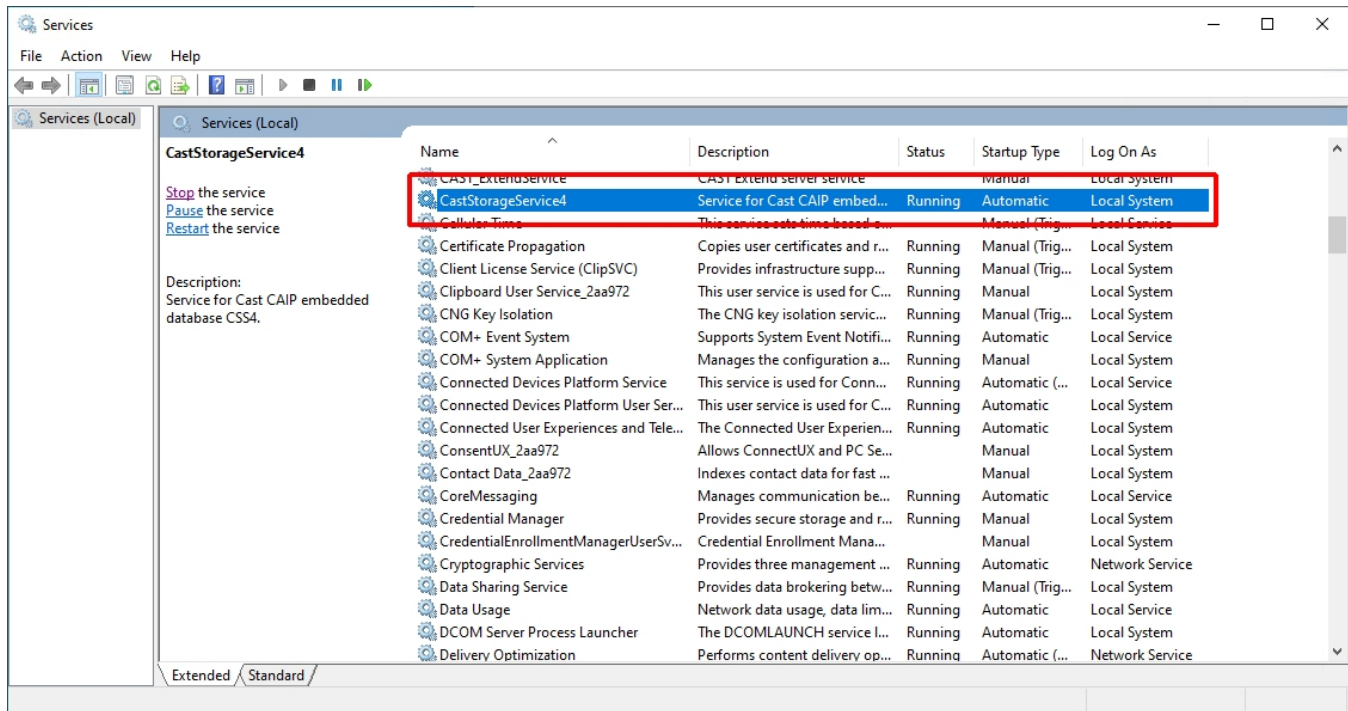
- [What to expect](#)
 - [Windows service](#)
 - [Windows processes](#)
 - [Windows Start Menu](#)
 - [Default database users/roles and passwords](#)
 - [Third-party items are installed with CAST Storage Service](#)
 - [postgres database](#)
- [Action items](#)
 - [Edit the pg_hba.conf file to allow/deny incoming connections](#)
 - [Edit the postgresql.conf file to tune the server](#)
 - [Tune RAM allocation](#)
 - [Other settings](#)
 - [Create custom database users - optional](#)

Summary: this page provides information about what you should expect when you install a CAST Storage Service and what you need to do post installation.

What to expect

Windows service

The CAST Storage Service is installed as a Windows Service (*click to enlarge*):

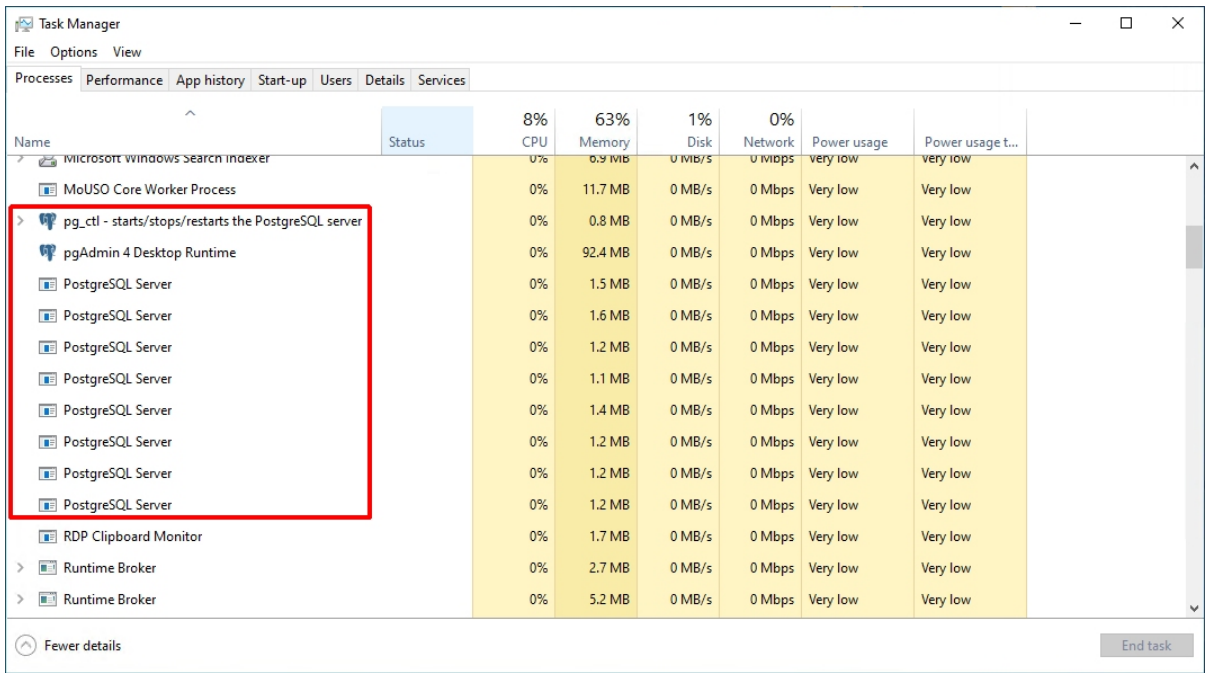


It is configured as follows:

- **Startup Type:** set to Automatic to restart the service should it stop or if Windows is rebooted.
- **Log On As:** Local System

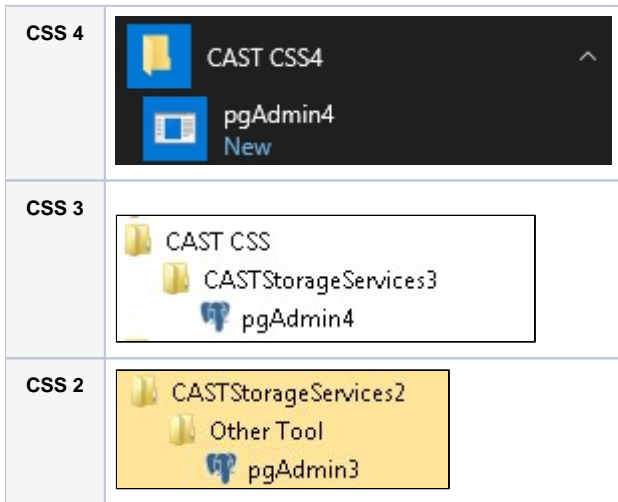
Windows processes

When the CAST Storage Service is running, several **PostgreSQL** related processes will be seen in Task Manager (*click to enlarge*):



Windows Start Menu

The installer will create the following Start menu items automatically. **pgAdmin3/pgAdmin4** launches the PostgreSQL database management console which is provided with CAST Storage Service:



Default database users/roles and passwords

When a CAST Storage Service is installed, two additional users/roles are created (operator/guest) by default as listed below. An additional user (postgres) is present out of the box:

User	Default password	Purpose

operator	CastAIP	<p>This user/role is designed to be used for all interaction with CAST AIP applications. It has full read and write access to all the schemas stored on the CAST Storage Service with the following privileges:</p> <div style="border: 1px solid black; padding: 5px;"> <p>Privileges</p> <p>Can login? <input checked="" type="checkbox"/> Yes</p> <p>Superuser? <input checked="" type="checkbox"/> Yes</p> <p>Create roles? <input type="checkbox"/> No</p> <p>Create databases? <input type="checkbox"/> No</p> <p>Update catalog? <input checked="" type="checkbox"/> Yes</p> <p>Inherit rights from the parent roles? <input checked="" type="checkbox"/> Yes</p> <p>Can initiate streaming replication and backups? <input type="checkbox"/> No</p> </div> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>i See Changing the default operator and guest passwords for CAST Storage Service if you would like to change the default password.</p> </div>
guest	WelcomeToAIP	<p>This user/role is designed to be used by third party tools requiring simple read-access to the schemas stored on the CAST Storage Service with the following privileges:</p> <div style="border: 1px solid black; padding: 5px;"> <p>Privileges</p> <p>Can login? <input checked="" type="checkbox"/> Yes</p> <p>Superuser? <input type="checkbox"/> No</p> <p>Create roles? <input type="checkbox"/> No</p> <p>Create databases? <input type="checkbox"/> No</p> <p>Update catalog? <input type="checkbox"/> No</p> <p>Inherit rights from the parent roles? <input checked="" type="checkbox"/> Yes</p> <p>Can initiate streaming replication and backups? <input type="checkbox"/> No</p> </div> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>i</p> <ul style="list-style-type: none"> This user/role is no longer used by any CAST applications from CAST AIP 8.3.11. We highly recommend that if you are using this user/role, that you stop doing so and switch to the default operator user. See Changing the default operator and guest passwords for CAST Storage Service if you would like to change the default password. </div>
postgres	-	<p>The postgres user/role is created by default with the privileges as listed in the images below:</p>

▼ Privileges

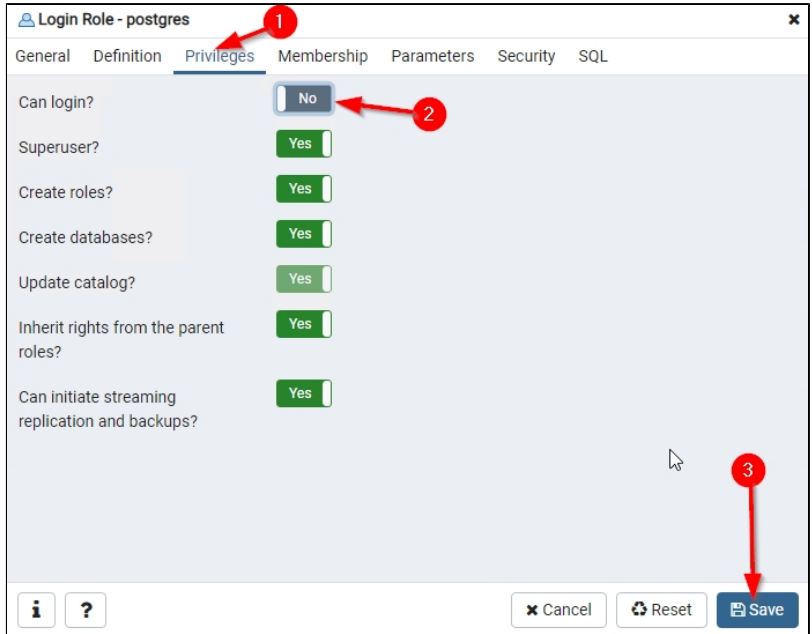
Can login?	<input type="checkbox"/> Yes
Superuser?	<input type="checkbox"/> Yes
Create roles?	<input type="checkbox"/> Yes
Create databases?	<input type="checkbox"/> Yes
Update catalog?	<input type="checkbox"/> Yes
Inherit rights from the parent roles?	<input type="checkbox"/> Yes
Can initiate streaming replication and backups?	<input type="checkbox"/> Yes

If you are concerned about security, you should **disable logins** for this user/role, and/or change the **default password**:

Disable login

Using **PgAdmin** (which is bundled with CAST Storage Service):

- right click the **postgres** user and select **Properties**
- then in the **Privileges tab** you can disable the login by moving the **Can login?** slider to **NO**
- then, **save** the changes



Change the password

Using **PgAdmin** (which is bundled with CAST Storage Service):

- right click the **postgres** user and select **Properties**
- then in the **Definition tab** enter the new password
- then, **save** the changes

Or use a SQL query:

```
ALTER ROLE postgres
WITH PASSWORD 'password' ;
```

i Since CAST AIP 8.3.12 it is not possible to change these passwords through the CAST Management Studio: you can change these passwords (recommended) using a tool such as **PGAdmin**.

Third-party items are installed with CAST Storage Service

When you complete an installation using the CAST Storage Service installer, if they are not already installed, the following third-party items will be installed to the target workstation:

CSS 4	<ul style="list-style-type: none"> • Microsoft Visual C++ 2015, 2017 and 2019 (x64 and x86) • pgAdmin4 4.19 (PostgreSQL database management console)
CSS 3	<ul style="list-style-type: none"> • Microsoft Visual C++ 2013 Redistributable (x64 and x86) • Microsoft Visual C++ 2017 Redistributable (x64) - since version 3.0.1 • pgAdmin4 (PostgreSQL database management console)
CSS 2	<ul style="list-style-type: none"> • Microsoft Visual C++ 2010 Redistributable (x64) • pgAdmin3 (PostgreSQL database management console)

postgres database

All CAST AIP products will expect the Application schemas to be members of the "**postgres**" database - i.e. all connections to a PostgreSQL instance will connect direct to the "**postgres**" database. This database is created by default during the installation of the CAST Storage Service instance and should be retained. While you can create an alternative custom database, it is not possible to connect to a custom database using any CAST AIP products.

Action items

Edit the pg_hba.conf file to allow/deny incoming connections

By default, CAST Storage Service is configured to **allow incoming connections on IPv4 and IPv6 from anywhere** via the `pg_hba.conf` file (see <https://www.postgresql.org/docs/current/auth-pg-hba-conf.html> for more information). This may not be desirable in your environment. If not, you can edit the following file with a text editor:

```
%PROGRAMFILES%\CAST\CastStorageService<version>\db_data\pg_hba.conf
```

Locate the following section and modify as required:

```
# TYPE DATABASE USER ADDRESS METHOD

# "local" is for Unix domain socket connections only
local all all trust
# IPv4 local connections:
host all all 127.0.0.1/32 trust
# This line allows any client to connect to the server. Doing so, we don't need to manage it anymore.
#host all all 0.0.0.0/0 scram-sha-256
host all all 0.0.0.0/0 md5
# IPv6 local connections:
host all all ::1/128 md5
host all all ::1/0 md5
#host all all ::1/128 scram-sha-256
# Allow replication connections from localhost, by a user with the
# replication privilege.
#local replication all scram-sha-256
#host replication all 127.0.0.1/32 scram-sha-256
#host replication all ::1/128 scram-sha-256
```

The following lines allow connections from anywhere:

```
host all all 0.0.0.0/0 md5 (IPv4)
host all all ::1/128 md5 (IPv6)
host all all ::1/0 md5 (IPv6)
```

When you have made any changes, save the file and restart the CAST Storage Service so that the changes are taken into account.

Edit the postgresql.conf file to tune the server

To check if the server itself is configured correctly for CAST AIP, we need to verify and modify certain parameters in the `postgresql.conf` file, located here:

```
%PROGRAMFILES%\CAST\CastStorageService<version>\db_data\postgresql.conf
```

Tune RAM allocation

The settings in `postgresql.conf` are directly related to available RAM for the PostgreSQL instance - and as such their configuration is specific to the host machine. Please use <http://pgtune.leopard.in.ua/> on the host machine to identify the correct settings and then modify `postgresql.conf` with the settings provided by `pgtune`. You should update the following settings with the values provided by `pgtune`:

- `effective_cache_size`
- `min_wal_size`
- `max_wal_size`
- `wal_buffers`

When you have made any changes, save the file and restart the CAST Storage Service so that the changes are taken into account.



When running **pgtune**, choose the following:

- Set the **DB version** to the **installed version**
- Set the **DB Type** to **Mixed type of applications**
- Set the **Number of connections** to **300**

Some of the values suggested by **pgtune** are somewhat low. Therefore, please calculate the following **postgresql.conf** settings as follows:

- **shared_buffers** - value should be **25% of available RAM with a max of 8 GB**
- **maintenance_work_mem**= **512 MB**

Other settings

The following settings should also be modified to the values listed below. When you have made any changes, save the file and restart the CAST Storage Service so that the changes are taken into account.

Parameters	Required value	Comments
listen_addresses	''*	Instead of localhost by default. Enables connectivity from other machines.
Port	2282 or 2284	
max_connections	300	
fsync	off	
synchronous_commit	off	
full_page_writes	off	
commit_delay	10	
checkpoint_completion_target	0.9	
cursor_tuple_fraction	1.0	
log_checkpoints	on	
log_destination	'stderr'	
logging_collector	on	
log_line_prefix	'%t [%p]: [%l-1] '	Don't forget the space before final quote mark.
log_temp_files	1024kB	
log_autovacuum_min_duration	1000ms	
autovacuum_vacuum_cost_limit	200	
bytea_output	'escape'	
datestyle	'iso, mdy'	Ensure that this option is active (it may already be active).
lc_messages	'C'	
lc_monetary	'C'	
lc_numeric	'C'	
lc_time	'C'	
max_locks_per_transaction	4096	Higher value than 64 by default.
standard_conforming_strings	on	

Create custom database users - optional

If you are using **CAST AIP 8.3.12**, you are also free to create your own users and then use them with CAST AIP and related software - you need to have a minimum of one user with the SUPERUSER permission and then grant the "postgres" role to this user. You can create custom users using a tool such as **PGAdmin**. An example SQL script for a user called "my_custom_user" is shown below:

```
CREATE USER my_custom_user WITH
    LOGIN
    SUPERUSER
    CREATEDB
    CREATEROLE
    INHERIT
    REPLICATION
    CONNECTION LIMIT -1
    PASSWORD 'xxxxxx';

GRANT postgres TO my_custom_user;
```

When using **CAST AIP 8.3.30**, it is possible to create custom users that do NOT require the SUPERUSER permission if you prefer not to grant this. For example, this script creates a role "my_custom_role" with the password "my_password" that can login. The role has not been granted the SUPERUSER permission and instead only the minimum permissions required to operate CAST AIP are granted:

```
CREATE ROLE my_custom_role LOGIN PASSWORD 'my_password' NOSUPERUSER INHERIT NOCREATEDB NOCREATEROLE
NOREPLICATION;
GRANT CREATE, CONNECT, TEMPORARY on DATABASE postgres to my_custom_role;
```