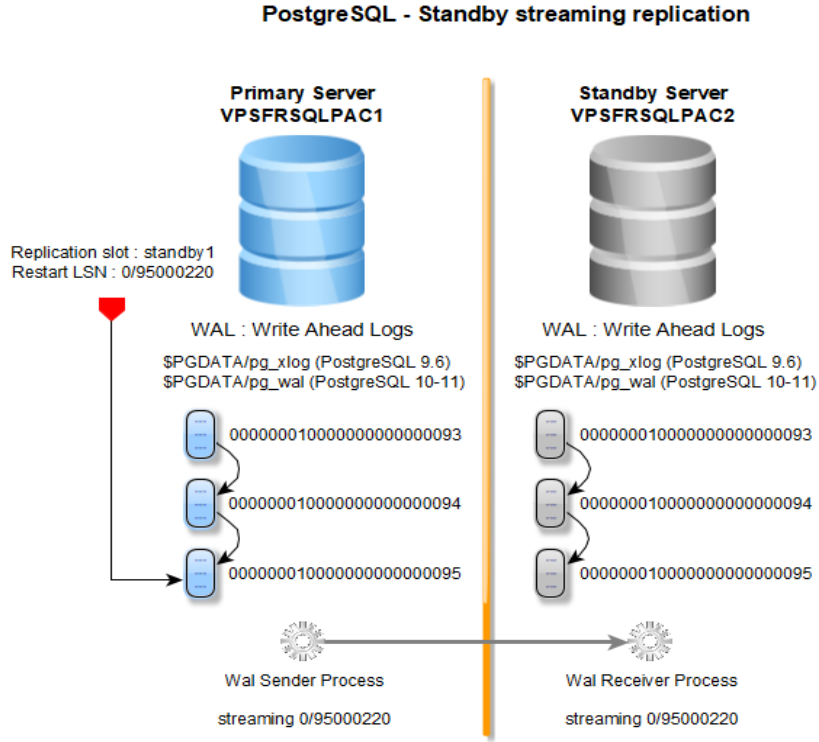


PostgreSQL Streaming replication

Bu makalede, Windows Server 2016 sunucularında bir PostgreSQL 13 Streaming replication uygulanmaktadır. Streaming replication modunda, bekleme, WAL kayıtlarını (Önden Yazma Günlüğü) oluşturuldukları gibi, WAL dosyasının doldurulmasını beklemeden beklemeye akıtan birincil kaynağa bağlanır. Streaming replication, yedek bir sunucunun dosya tabanlı günlük gönderimiyle mümkün olandan daha güncel kalmasını sağlar.

Bekleme sunucusu, örneğin raporlama amacıyla salt okunur modda olabilir.

Bir replication slotu, bekleme için gereken WAL dosyalarının, bekleme sunucusu bunları işlemeyen önce birincil sunucudan kaldırılmamasını sağlar. Yedek sunucuların sayısına bağlı olarak birden fazla replication slotu tanımlanabilir.



İşlemleri yaparken kullanacağım prosedür aşağıdaki gibidir.

Ana Sunucu Adı/Ip: **pg1 / 192.168.248.250**

Yedek Sunucu Adı/Ip: **pg2 / 192.168.248.251**

Bağlantı Portu: **5432**

Yapılandırma Dosyaları Postgresql Kurulum

C:\Program Files\PostgreSQL\13\data\ **postgresql.conf**

C:\Program Files\PostgreSQL\13\data\ **pg_hba.conf**

C:\Program Files\PostgreSQL\13\data\ **postgresql.auto.conf**

Windows için kullanacağımız CMD komutları administratör olarak açık olmalıdır.

AppDizinine Geçiş Cmd işlemleri bu dizin üzerinde yapılabilir sadece. Bu Path Postgresql'i kurduğunuz yere göre değişir kontrol etmeyi unutmayın.

cd C:\Program Files\PostgreSQL\13\bin

pg_ctl.exe restart -D "C:\Program Files\PostgreSQL\13\data\"

pg_ctl.exe reload -D "C:\Program Files\PostgreSQL\13\data\"

Master sunucunun hazırlanması

Sistem parametreleri

Aşağıdaki işlemleri yaptıktan sonra sunucu yeniden başlatılmalıdır.

Birincil sunucunun hazırlanması

Sistem parametreleri

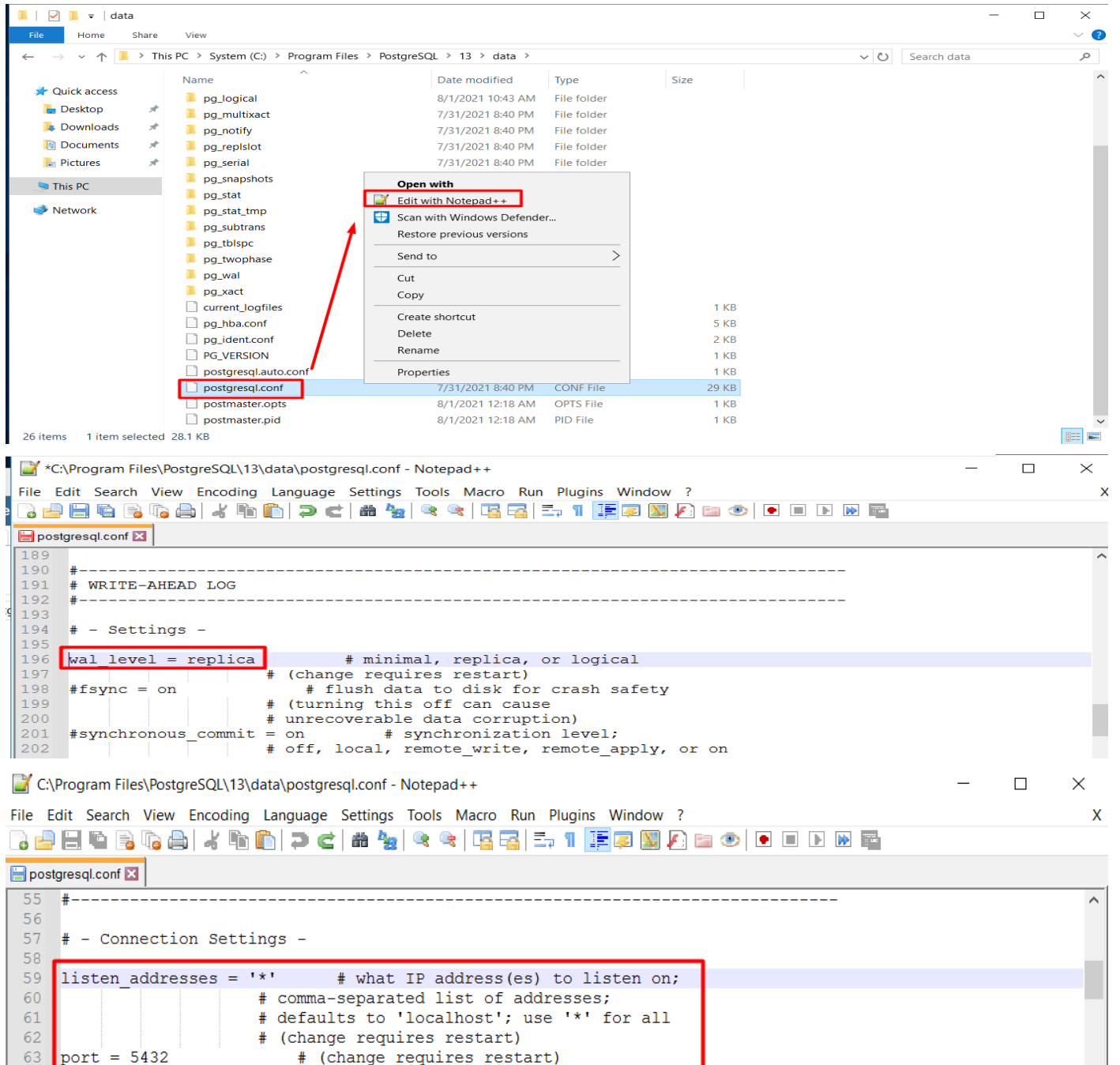
En azından aşağıdaki statik parametreleri uygulamak için birincil sunucu, özellikle PostgreSQL 9.6 ile yeniden başlatılmalıdır:

C:\Program Files\PostgreSQL\13\data\postgresql.conf

Dosyasının başındaki # lerin kaldırılması gerekmektedir.

listen_addresses = '*'

wal_level=replica



```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Windows\system32>cd C:\Program Files\PostgreSQL\13\bin

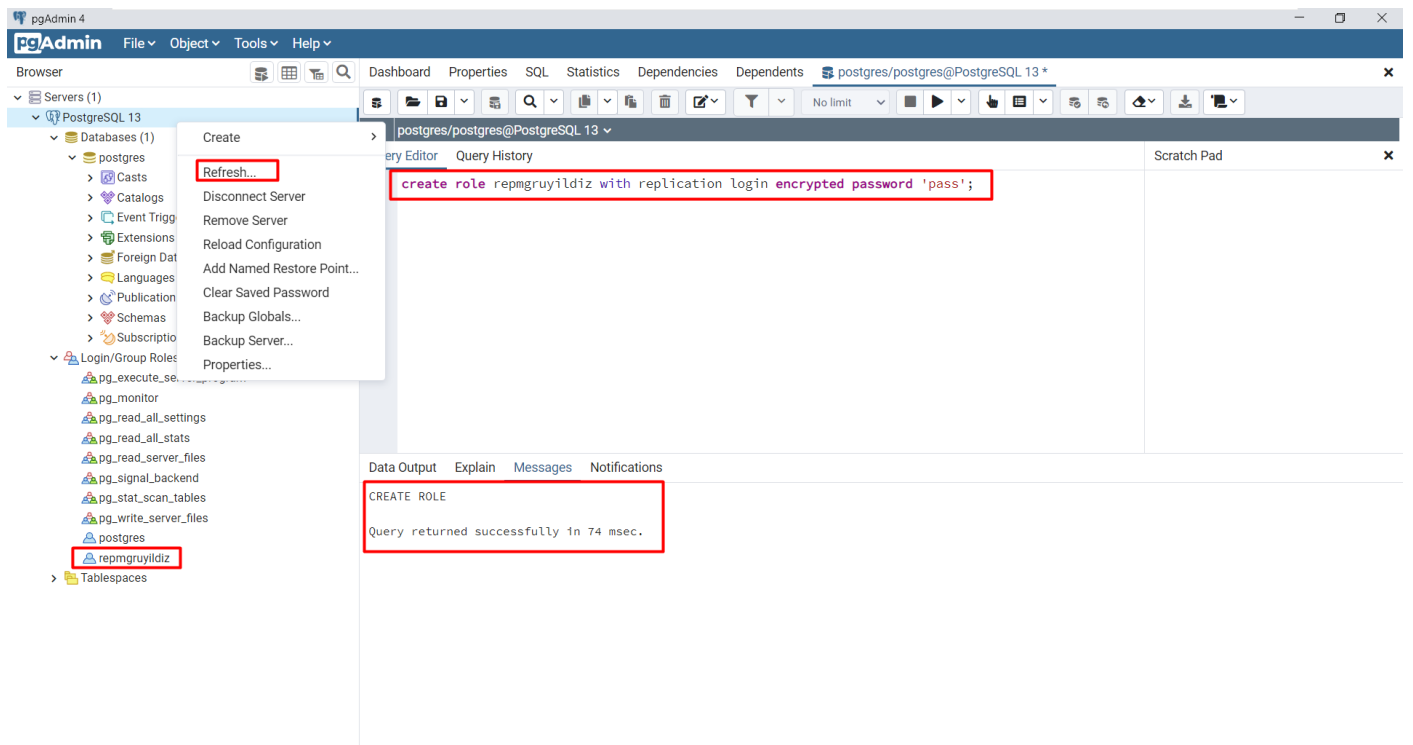
C:\Program Files\PostgreSQL\13\bin>pg_ctl.exe restart -D "C:\Program Files\PostgreSQL\13\data\"
waiting for server to shut down.... done
server stopped
waiting for server to start....2021-08-01 10:51:25.152 +03 [260] LOG:  log ıktisi logging collector srecine ynlendirilior
2021-08-01 10:51:25.152 +03 [260] IPUCU:Gelecekteki log ıktisi "log" dizininde grnecek.
done
server started

C:\Program Files\PostgreSQL\13\bin>
```

PostgreSQL Replikasyon Kullanıcısı Eklenir

repmgruyildiz Ayrıcalıklı bir rol oluşturun , bu rol, birincil sunucuya bağlanmak için bekleme sunucusu tarafından kullanılacaktır:

```
create role repmgruyildiz with replication login encrypted password 'pass';
```

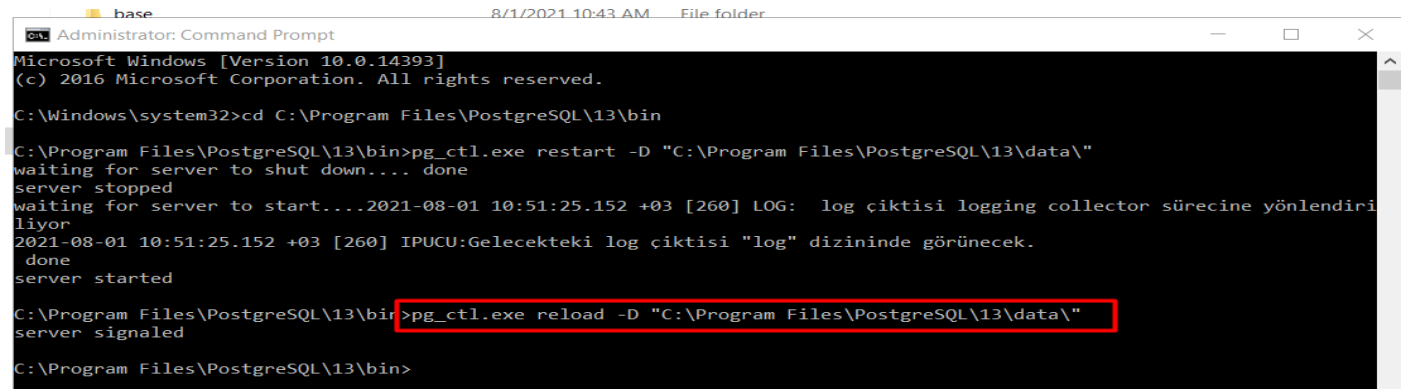
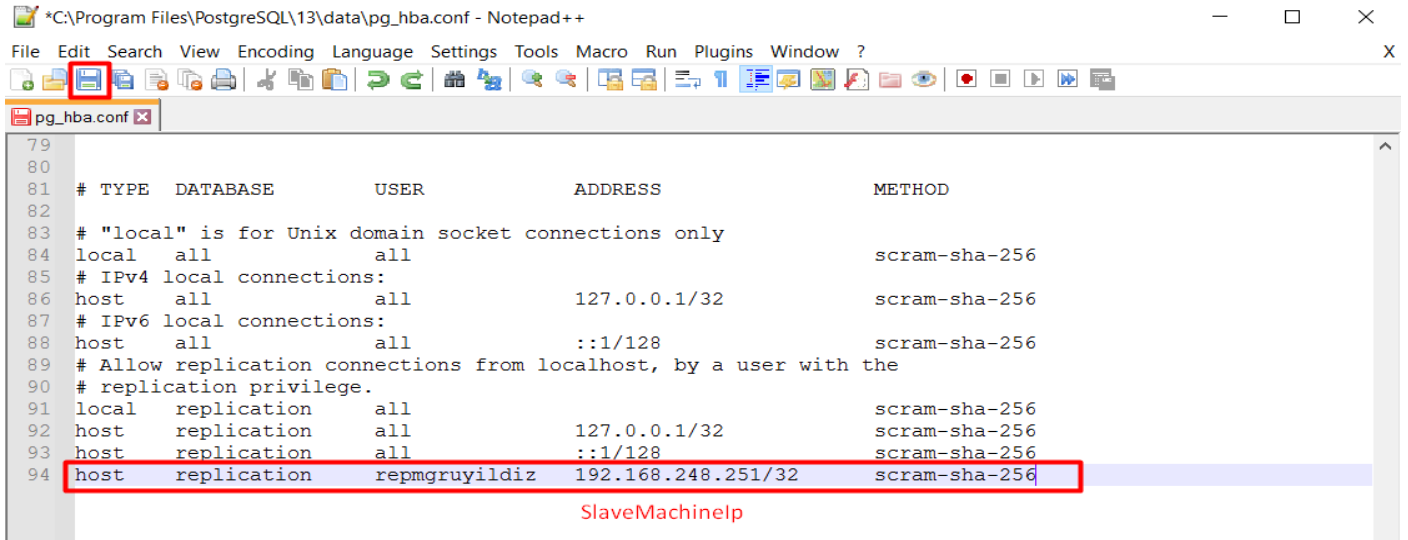
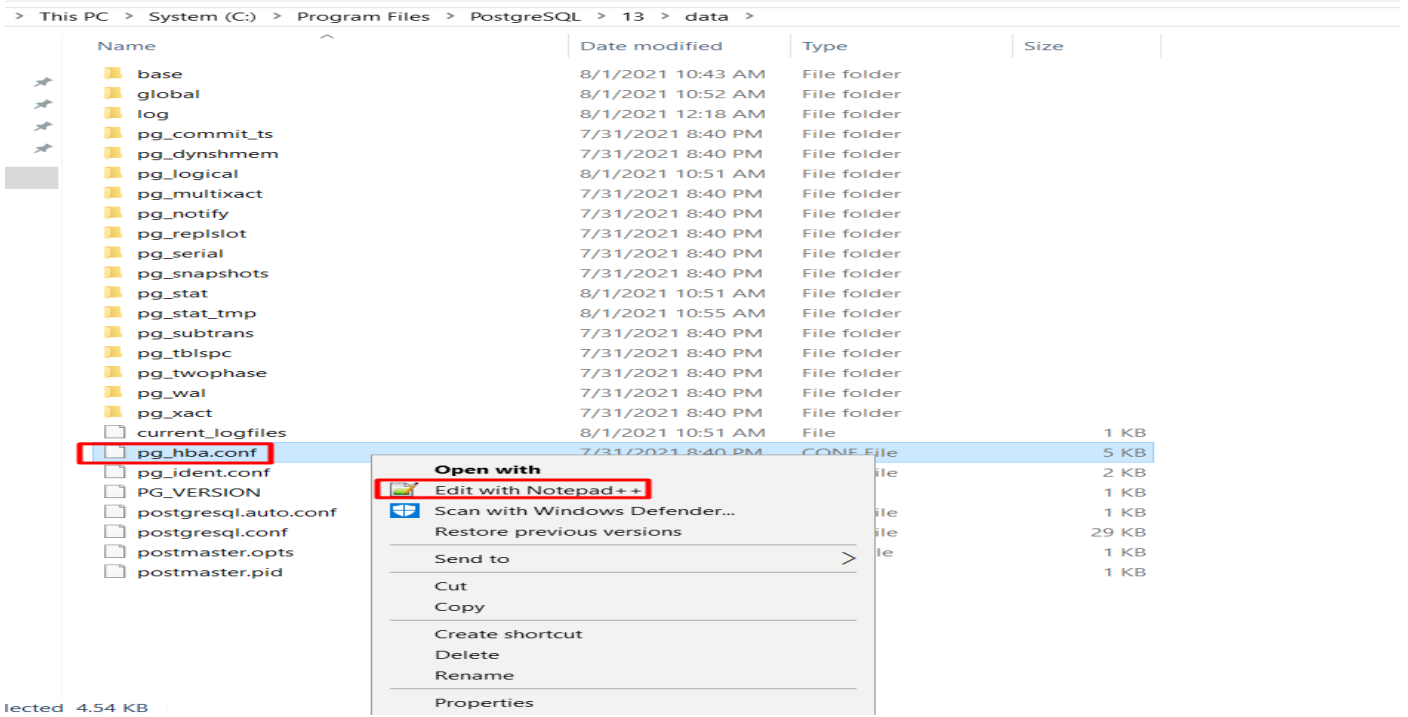


C:\Program Files\PostgreSQL\13\data\pg_hba.conf

Standby IP adresi sunucusuyla birincil sunucu dosyasına rolü ekleyin , bu, bekleme sunucusundan bağlantılara izin verecektir. Mevcut güvenlik duvarı kurallarını yönetmeyi unutmayın.

host replication all 192.168.248.251/32 scram-sha-256

pg_ctl.exe reload -D "C:\Program Files\PostgreSQL\13\data\"



Replication slot

Replication Slot oluşturulur ve yapılandırılır.

```
select * from pg_create_physical_replication_slot('standby1');  
select slot_name, restart_lsn from pg_replication_slots;
```

Master Sunucu yedeklemesi yapılır

```
pg_basebackup -D /sqlpac/postgres/backup/srvpg1 -X stream --write-recovery-conf --  
slot=standby1 --dbname="host=localhost user=postgres port=5432"
```

Yedekleme tamamlandığında, çoğaltma yuvası standby1 tanımlanır:

The screenshot shows the pgAdmin 4 interface. On the left, the 'Servers' tree is expanded to 'PostgreSQL 13' > 'databases' > 'postgres'. The 'Query Editor' is active, showing the following SQL queries:

```
1 --Replication Slot oluşturulur  
2 select * from pg_create_physical_replication_slot('standby1');  
3 --ServerBackup esnasında çalışacak şekilde yapılandırılır  
4 select slot_name, restart_lsn from pg_replication_slots;
```

The 'Data Output' tab is selected, showing the results of the second query:

slot_name	lsn
standby1	[null]

The screenshot shows the pgAdmin 4 interface. On the left, the 'Servers' tree is expanded to 'PostgreSQL 13' > 'databases' > 'postgres'. The 'Query Editor' is active, showing the following SQL queries:

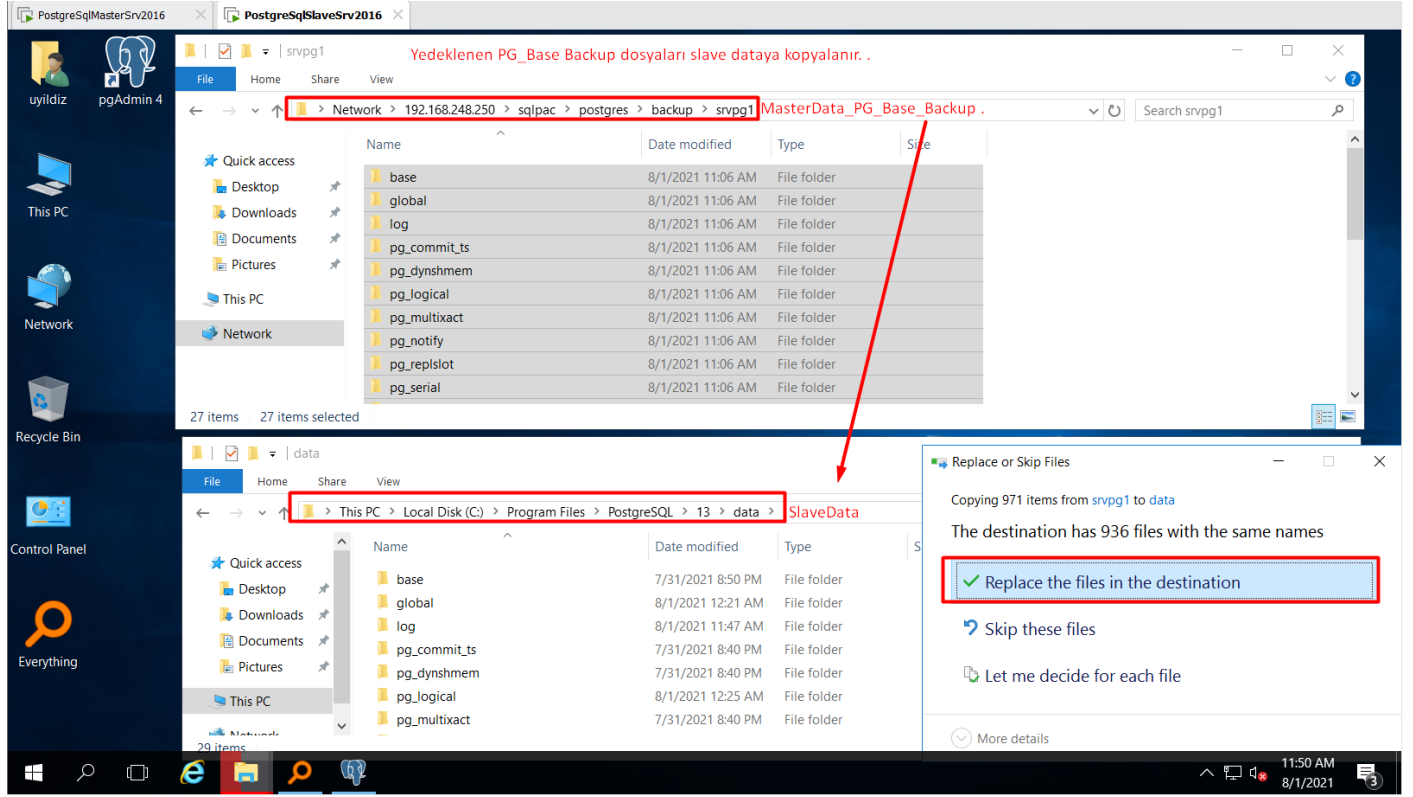
```
1 --Replication Slot oluşturulur  
2 select * from pg_create_physical_replication_slot('standby1');  
3 --ServerBackup esnasında çalışacak şekilde yapılandırılır  
4 select slot_name, restart_lsn from pg_replication_slots;
```

The 'Data Output' tab is selected, showing the results of the second query:

slot_name	restart_lsn
standby1	[null]

Slave sunucunun hazırlanması

MasterDatada alınan backup içindeki dosyalar slave sunucuya kopyalanır.



Bağlantı bilgisi parametrelerini bu dosyadaki master sunucuya güncellenir.

C:\Program Files\PostgreSQL\13\data\ postgresql.auto.conf

```
primary_conninfo = 'user=repmgruyildiz host=pg1 port=5432 password=pass'
primary_slot_name = 'standby1'
```

C:\Program Files\PostgreSQL\13\data\ postgresql.conf

```
hot_standby = on
```

Stanby Sunucu başlatılır

```
pg_ctl.exe start -D "C:\Program Files\PostgreSQL\13\data\"
```

Kurtarma modunun true olduğu görüntülenir.

```
select pg_is_in_recovery();
```

File Edit View VM Tabs Help PostgreSQLMasterSrv2016 PostgreSQLSlaveSrv2016

data

File Home Share View

→ This PC → Local Disk (C:) → Program Files → PostgreSQL → 13 → data

Quick access Desktop Downloads Documents Pictures data This PC Network

Name Date modified

pg_dynshmem	7/31/2021 8:40 PM
pg_logical	8/1/2021 12:25 AM
pg_multixact	7/31/2021 8:40 PM
pg_notify	7/31/2021 8:40 PM
pg_replslot	7/31/2021 8:40 PM
pg_serial	7/31/2021 8:40 PM
pg_snapshots	7/31/2021 8:40 PM
pg_stat	8/1/2021 11:52 AM
pg_stat_tmp	8/1/2021 11:52 AM
pg_subtrans	7/31/2021 8:40 PM
pg_tblspc	7/31/2021 8:40 PM
pg_twophase	7/31/2021 8:40 PM
pg_wal	8/1/2021 11:47 AM
pg_xact	7/31/2021 8:40 PM
backup_label	8/1/2021 11:06 AM
backup_manifest	8/1/2021 11:06 AM
current_logfiles	8/1/2021 11:06 AM
pg_hba.conf	8/1/2021 11:06 AM
pg_ident.conf	8/1/2021 11:06 AM
PG_VERSION	8/1/2021 11:06 AM
postgresql.auto.conf	8/1/2021 11:06 AM
postgresql.conf	8/1/2021 11:06 AM
postmaster.opts	8/1/2021 12:20 AM
standby.signal	8/1/2021 11:06 AM

28 items 1 item selected 346 bytes

*C:\Program Files\PostgreSQL\13\data\postgresql.auto.conf - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

postgresql.auto.conf

```
1 # Do not edit this file manually!
2 # It will be overwritten by the ALTER SYSTEM command.
3 primary_conninfo = 'user=repmgruyildiz host=192.168.248.250 port=5432 password=pass'
4 primary_slot_name = 'standby1'
5
```

Normal text file length: 208 lines: 5 Ln: 5 Col: 1 Pos: 209 Windows (CR LF) UTF-8 INS

File Edit View VM Tabs Help PostgreSQLMasterSrv2016 PostgreSQLSlaveSrv2016

data

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Quick access Desktop Downloads Documents Pictures data This PC Network

Name Date modified

pg_dynshmem	7/31/2021 8:40 PM
pg_logical	8/1/2021 12:25 AM
pg_multixact	7/31/2021 8:40 PM
pg_notify	7/31/2021 8:40 PM
pg_replslot	7/31/2021 8:40 PM
pg_serial	7/31/2021 8:40 PM
pg_snapshots	7/31/2021 8:40 PM
pg_stat	8/1/2021 11:52 AM
pg_stat_tmp	8/1/2021 11:52 AM
pg_subtrans	7/31/2021 8:40 PM
pg_tblspc	7/31/2021 8:40 PM
pg_twophase	7/31/2021 8:40 PM
pg_wal	8/1/2021 11:47 AM
pg_xact	7/31/2021 8:40 PM
backup_label	8/1/2021 11:06 AM
backup_manifest	8/1/2021 11:06 AM
current_logfiles	8/1/2021 11:06 AM
pg_hba.conf	8/1/2021 11:06 AM
pg_ident.conf	8/1/2021 11:06 AM
PG_VERSION	8/1/2021 11:06 AM
postgresql.auto.conf	8/1/2021 12:03 PM
postgresql.conf	8/1/2021 11:06 AM
postmaster.opts	8/1/2021 12:20 AM
standby.signal	8/1/2021 11:06 AM

28 items 1 item selected 28.1 KB

*C:\Program Files\PostgreSQL\13\data\postgresql.conf - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?

postgresql.conf

```
307 # and comma-separated list of application_name
308 # from standby(s); '*' = all
309 #vacuum_defer_cleanup_age = 0 # number of xacts by which cleanup is delayed
310
311 # - Standby Servers -
312
313 # These settings are ignored on a master server.
314
315 #primary_conninfo = '' # connection string to sending server
316 #primary_slot_name = '' # replication slot on sending server
317 #promote_trigger_file = '' # file name whose presence ends recovery
318 hot_standby = on # "off" disallows queries during recovery
319 # (change requires restart)
320 #max_standby_archive_delay = 30s # max delay before canceling queries
321 # when reading WAL from archive;
322 # -1 allows indefinite delay
323 #max_standby_streaming_delay = 30s # max delay before canceling queries
324 # when reading streaming WAL;
325 # -1 allows indefinite delay
326 #wal_receiver_create_temp_slot = off # create temp slot if primary_slot_name
327 # is not set
328 #wal_receiver_status_interval = 10s # send replies at least this often
329 # 0 disables
330 #hot_standby_feedback = off # send info from standby to prevent
331 # query conflicts
332 #wal_receiver_timeout = 60s # time that receiver waits for
```

Normal text file length: 28,812 lines: 781 Ln: 318 Col: 70 Pos: 12,447 Windows (CR LF) UTF-8 INS

