



## POST-ADM - PostgreSQL Database Administration

PostgreSQL - Postgre SQL - Sistemistica

Durata:

**4 Giorni**

Lingue:

**Italiano**

Certificazione:

-

### Descrizione del corso

Questo corso completa le conoscenze per evadere i compiti quotidiani di un DBA, partendo dalle operazioni di base ad alcune tecniche intermedie.&Consigliato per amministratori di database e amministratori di sistema.

### Programma

1. Introduzione a PostgreSQL
  - Caratteristiche principali
  - PostgreSQL Architecture Overview
  - Installazione di PostgreSQL
  - Installazione dei pacchetti
  - Inizializzazione database
  - Creazione di un database di prova
2. Amministrazione
  - File di configurazione
  - Creazione e rimozione di un database
  - Security fundamentals
3. Manutenzione
  - Critical parameters
  - Kernel shared memory settings
  - Database restart modes
  - Processes started by PostgreSQL
  - postmaster

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- bgwriter
  - stats collector
  - autovacuum
  - statistics and `_ANALYSE_command`
  - clients processes (backends)
  - Data Integrità guarantees
  - WAL files
  - `_fsync_settings`
  - Write-through and write-back caches
  - Routine Maintenance
4. Backup e restore
- Quando fare backup e restore
  - `pg_dump`
  - `pg_dumpall`
  - Restore
  - Restore via a List File
  - Restoring data from a copy, including partial recover
5. Advanced backup techniques
- PostgreSQL operation log working
  - WAL logs archiving (log shipping)
  - `_pg_basebackup_program`
  - `_pg_receivexlog_program`
  - Parallel mode for `pg_dump_`
  - Point In Time Recovery
  - Backup at the file system's level
6. Performance tuning
- Key parameters influencing performance
  - Performance and reliability balancing
  - Performance problems diagnosing
7. Statistics
- The PostgreSQL Statistics Collector
  - Statistics Views
  - Statistics Functions
8. Replication
- Hot standby
  - Streaming replication
  - Monitoring replication stage

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- Replication parameters tuning
  - Cascading Replication
  - Synchronous replication
  - Inner workings
  - The balance of benefits and costs
  - External replication systems
9. High availability
- Replication setting for HA
  - Master-slave automated promotion
  - STONITH problem (Shoot The Other Node In The Head)
  - Security guarantees for HA systems
  - Estimating the risk of losing data in case of failure
  - External HA systems for PostgreSQL
  - Heartbeat Monitoring
  - Failing Over
  - Failing Back
10. Monitoring database work
- System tools
  - OS Process Monitoring
  - vmstat, top, iostat
  - strace, systemtap
  - System perspectives
  - Monitoring the bgwriter process
  - Troubleshooting deadlocks
  - Preventing transaction wraparound
  - Dedicated monitoring tools
  - `_check_postgres.pl_script`
  - Log parsers: `pgFouine`, `_pg_badger_`
  - Automatic errors notification: `_tail_n_mail_`
  - Avoiding auto freezing and page corruptions
  - Avoiding transaction wraparound
  - Removing old prepared transactions
  - Maintaining indexes
  - View locks
  - Monitoring, backup correctness verification
11. Upgrade Methods
- Minor Version Upgrades

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- pg\_upgrade
- RPM Based Upgrade
- Source Based Upgrade
- SLONY Based Upgrade

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