

Improving Relational Database Performance

PxPlus 2019 (v16)

RDB Performance

- If using an RDB instead of PxPlus data files, application may feel **slower**
 - Remote PxPlus keyed files always had local caching
- Each read/write to a table results in a request and a response from the RDB
 - RDB processing time
 - Disk I/O speed
 - Network latency/speed
- Hardware/Network may be performance bottleneck
- Not optimized SQL

How to Improve RDB Performance

- If accessing fixed data repeatedly, **caching** to quick access memory can reduce the number of disc/network requests
 - Caching too big of a table will increase the memory used by the application
- Upgrading hardware/network
- Optimizing SQL
 - **WRITE RECORD/READ RECORD** directives can be used to send/read a SQL command directly to RDB

OPEN LOAD Directive

- **OPEN LOAD** directive
 - Read-only access
 - Keyed files only
 - Cache any keys that get read

OPEN LOAD (chn) filename\$

- Does not help if using an RDB

OPEN LOAD Caching

New in PxPlus 2019

- Enhanced **OPEN LOAD** to work with keyed and RDB data
- New options to enable whole table caching for **OPEN LOAD**
- **OPEN LOAD** whole table caching
 - Creates a temporary memory file
 - Same key structure, IOLIST and embedded Data Dictionary elements
 - Copies whole table into memory file
 - All reads now automatically use memory file

Benefits of OPEN LOAD Caching

- Works with RDB data
- The more data is accessed from cache instead of over a network, the **faster** the performance
- No code changes required

Cache Load System Parameter

New in PxPlus 2019

- **OPEN LOAD** whole table caching is controlled via the 'CL' cache load system parameter
- 'CL' setting times 1,000 defines max number of records in a cached table
 - All RDB and keyed tables with a record count below 'CL' x 1000 will be cached
- The default is 1 (1,000 records)
- Max is 32,000 (32,000,000 records)
- To disable set to 0

Cache Option

New in PxPlus 2019

- Individual **OPEN LOAD** directives can include an **OPT=** clause of **CACHE=CacheOpt** to control whole table caching, overriding 'CL'

CacheOpt	Description
YES	Caching is to be done regardless of record count
NO	Caching is not to be done regardless of record count
nnn	Caching is done if the table contains less than nnn times 1,000 records The max is 32,000 (32,000,000 records), higher than that treated as 32,000

Recap

- Improve performance working with RDB tables by using **OPEN LOAD** caching

Additional Resources

The help link(s) below refer to the current on-line help pages. The functionality may have been further updated since the PxPlus 2019 (version 16) release.

- [Direct SQL Execution](#)
- [OPEN LOAD Directive](#)
- [OPEN LOAD Caching](#)