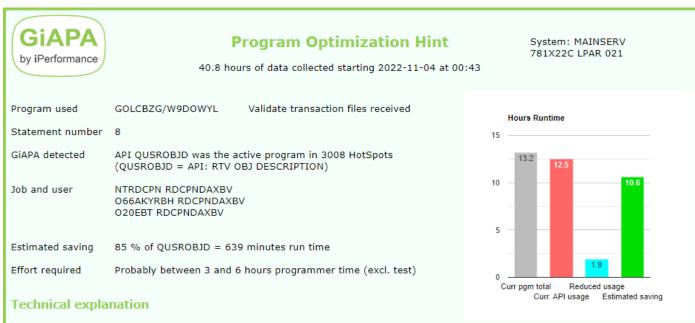
# **Output Examples Generated by GiAPA**

#### **Automatically Generated Program Optimization Hint**



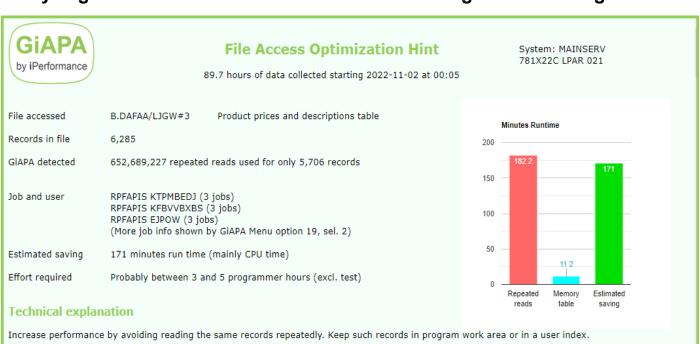
APIs and CL commands provide many utility functions. Some are fairly resource intensive and repeated calls should be avoided.

#### Tips on how to optimize the performance

Tips on how to optimize the performance

It is quite uncommon to see this API or CPP appear as the active program in several GiAPA HotSpots. We recommend investigating whether the call to this function is placed within a loop and accordingly executed e.g. once per record instead of only once in the beginning of the job. Many APIs/CPPs are fairly resource intensive since collection of the requested information requires accessing many objects. If called frequently it might improve performance to test if the API/CPP call parameters are unchanged compared to the previous call, and if so simply reuse the result. Another option is storing the parameters and results in an array so repeated calls can be replaced by a binary table look-up.

### **Analyzing File Accesses Across All Jobs Reveals Significant Savings**



not uncommon to see records/rows being read more than a thousand times each by a job. Although the operating system automatically holds frequently used data in the main storage, quite some overhead remains connected with each access. Reading such records/rows into a program internal array and replacing the read with a binary lookup can provide significant CPU savings. An efficient alternativ is a user index, which also is a permanent object that can be saved. If only very few records are accessed, a simple test may be the solution: skip the reading if the record happens to be the last accessed.

Some tables/files with relatively few rows/records are used very heavily by several applications reading rows/records for each transactions processed. It is

#### SQL Plan Cache data for jobs selected by user is automatically collected and pre-analyzed

```
GiAPA (c) by
                                      Plan Cache Snapshots of SQL Access Plan Data
                                                                                                             24-03-22
                        Selections specified: Job: TSTJOIN* Start date/time: 24-03-21 00:00
                                                                                                             09:54:58
iPerformance
                                             User: *ALL
                                                            End date/time: 99-12-31 23:59
Job Name User Name, JobNbr Run Date QRO(Hex) Nbr of SQL stmts SQL-Statement Library/SourceFile(Member)
126523 2024-03-21 A8D77AD7 2 SQL-stmt(s) from GIAPA_SQL/QRPGLESRC(TSTSQLJOIR)
                                                                                               213 bytes total length
  42 bytes: FETCH CURSOR1 INTO: H,: H,: H,: H
 171 bytes: DECLARE CURSOR1 CURSOR FOR SELECT LNNAME , CSJNAM , CSJSTA , CSTSTA FROM GIAPALIB . GIAPA143P5 , GIAPALIB . GIAPA143P2
WHERE GIAPA143P5 . LNRRN = GIAPA143P2 . CSACTPCKEY
                                    Text explaining Plan Cache
 Dumps available,
                                    "Access Plan Reason Code"
 last 3 are shown
→11 Dumps 2024-03-21 03:01 GIAPA_SQL/QZG0001464
                                               2024-03-21 02:51 GIAPA_SQL/QZG0001463
                                                                                   2024-03-21 02:41 GIAPA_SQL/QZG0001462
PlanNbr 274
             Table or member recreated.◀
                                                                                         Number and names of Plan
2 Table Scan
                1 AcPlan Rebuilt 1 Optim. Timeout
                                                 1 Generic Info
                                                                   1 Tmp.HashTabCrt◀
                                                                                         Cache records, indicating the
                                                                                         Optimizer's "considerations"
                                                                                         for selecting the access plan
  Alternative Access Plan(s) recorded for this QRO
  2 Dumps 2024-03-21 01:09 GIAPA_SQL/QZG0001453 2024-03-21 00:28 GIAPA_SQL/QZG0001449
PlanNbr 1806 Access plan was built to use a reusable Open Data Path (ODP) and optimizer chose a non-reusable ODP for this call
               3 Index Created 2 Temp. Table
                                                  1 Table Locked 1 AcPlan Rebuilt 1 Array HostVar
1 Index Used
                                                                                                    1 Generic Info
3 Distin.Process 2 Grouping
                                 1 Recurs. TabExpr
  1 Dumps 2024-03-21 00:18 GIAPA_SQL/QZG0001448
PlanNbr 32551 None of the 25 defined specific reasons for choice of access method apply in this case.
                1 AcPlan Rebuilt 1 Optim.Timeout
                                                 1 Generic Info
2 Table Scan
                                                                   1 Tmp.HashTabCrt
                 Please observe that the results shown here only are random examples of texts that may appear.
                F2=Cmd Line F3=Exit F6=Show Current Users
                                                             PageUp/PageDown
Enter=Go to top
```

#### ✓ Shows location of snapshots needed for analysis using IBM's SQL Performance Center

GIAPA (c) by iPerformance	Current User Names for Job	QZDASOINIT QUSER 625018	24-01-05 11:50:38
Date and Time Current User			
23-11-28 12:52:10 CASASALEX	23-11-28 12:48:30 DCCCADMIN	23-11-28 12:44:49 CASASALEX	23-11-28 12:41:08 CASASALEX
23-11-28 12:52:00 ALSLOGJDBC	23-11-28 12:48:20 DCCCADMIN	23-11-28 12:44:39 DCCCADMIN	23-11-28 12:40:58 CASASALEX
23-11-28 12:51:50 CASASALEX	23-11-28 12:48:10 CASASALEX	23-11-28 12:44:29 CASASALEX	23-11-28 12:40:48 ROBOKADM
23-11-28 12:51:40 DCCCADMIN	23-11-28 12:48:00 ROBOKADM	23-11-28 12:44:19 CASASALEX	23-11-28 12:40:38 CASASALEX
23-11-28 12:51:30 DCCCADMIN	23-11-28 12:47:49 CASASALEX	23-11-28 12:44:09 ALSLOGJOBC	23-11-28 12:40:28 APMPADMMDM
23-11-28 12:51:20 CASASALEX	23-11-28 12:47:39 ALSLOG3DBC	23-11-28 12:43:59 ALSLOGJDBC	23-11-28 12:40:18 CASASALEX
23-11-28 12:51:10 CASASALEX	23-11-28 12:47:29 ALSLOG3DBC	23-11-28 12:43:49 ALSLOGJDBC	23-11-28 12:40:08 ALSLOGIDBC
23-11-28 12:49:30 CASASALEX	23-11-28 12:45:49 CASASALEX	23-11-28 12:42:09 CASASALEX	23-11-28 12:38:28 DCCCADMIN
23-11-28 12:49:20 ALSLOGJDBC	23-11-28 12:45:39 APMPADMMOM	23-11-28 12:41:59 DCCCADMIN	23-11-28 12:38:18 DCCCADMIN
23-11-28 12:49:10 ALSLOGJOBC	23-11-28 12:45:29 CASASALEX	23-11-28 12:41:48 DCCCADMIN	23-11-28 12:38:08 DCCCADMIN
23-11-28 12:49:00 CASASALEX	23-11-28 12:45:19 ALSLOG3DBC	23-11-28 12:41:38 DCCCADMIN	23-11-28 12:37:58 CASASALEX
23-11-28 12:48:50 DCCCADMIN	23-11-28 12:45:09 ALSLOGJD8C	23-11-28 12:41:28 DCCCADMIN	23-11-28 12:37:48 CASASALEX
23-11-28 12:48:40 DCCCADMIN	23-11-28 12:44:59 ROBOKADM	23-11-28 12:41:18 DCCCADMIN	23-11-28 12:37:38 CASASALEX +
Enter=Go to top F2=Cmd Line	F3=Return PageUp/PageDow	n	

✓ Current user names are valuable information when analyzing data base host server jobs GiAPA has <u>much</u> more to offer - please visit our five-minute video, technical presentation, references, and examples at <u>www.giapa.com</u>.

## Standard or user defined graphs can be generated and emailed in night batch jobs

