Annexure 2: Test Results

This document contains minimum hardware requirements for an application and the results of the testing exercise carried out on 1KEY2.0.1 version by Quexst, and draws attention to the key observations made. It includes the known issues/limitation list.

The report is divided in four sections.

Section 1: Minimum Hardware Requirements

Section 2: Summary Report.

Section 3: Known Limitations

Section 1: Minimum Hardware Requirements

1KEY application can be satisfactorily installed and executed with 40GB Hard Drive and 512 MB of RAM with MS Windows XP Professional / Windows 2000 Server /Windows 2003 server Operating Systems.
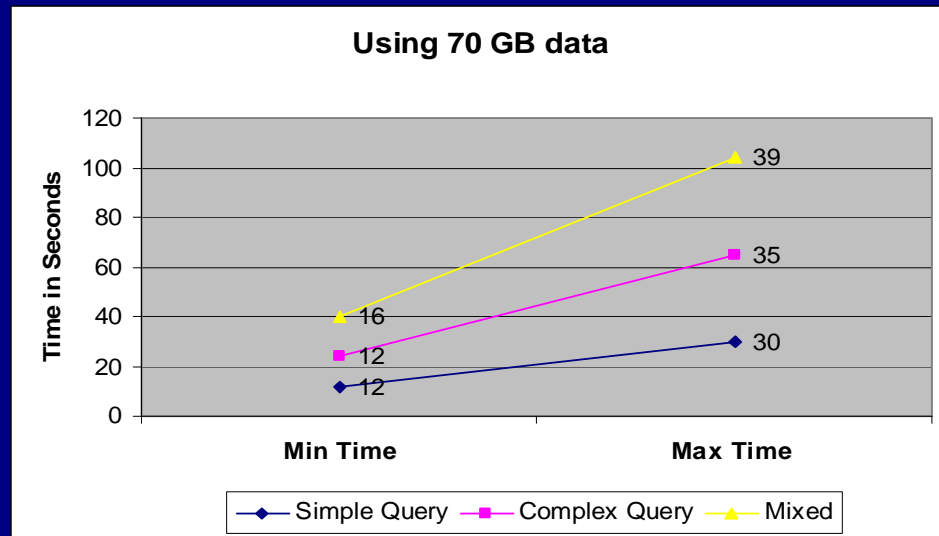
Section 2: Summary Report

A. Summary of Results – Observations at a glance

1. When the same report is viewed by multiple users sequentially, the data fetch after the first fetch is faster due to data sets, which are common.
2. The application's performance meets the criteria as set by MAIA-Intelligence
3. Windows XP clients as comparatively faster than Windows 2000 Professional clients
4. With 1 GB RAM on server, upto 1000 login sessions can be started, without affecting the performance
5. The application supports MDF files and not LDF files. Since the maximum capacity of MDF files is 70 GB, all tests were carried out with the same as maximum size.
6. When the user count is increased to 114 for viewing different reports, session time out occurs. This is in the case of reports associated with complex queries
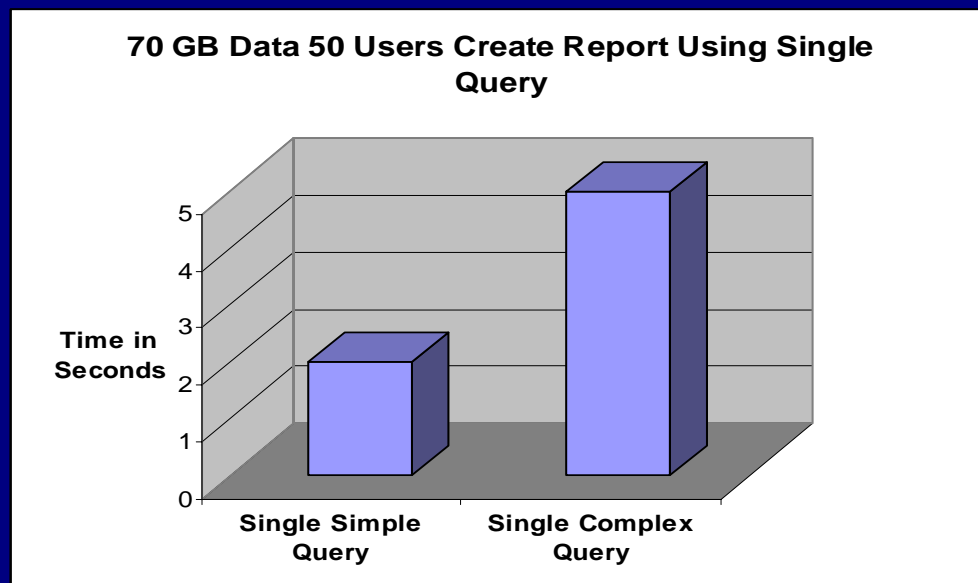7. The Application is not tested for Windows XP Home Edition

Since the above tests have been conducted in a simulated environment, the same results may not be obtained in all circumstances. Actual results may differ due to different workload, hardware and software setups. Nevertheless, it should be close to the above results.
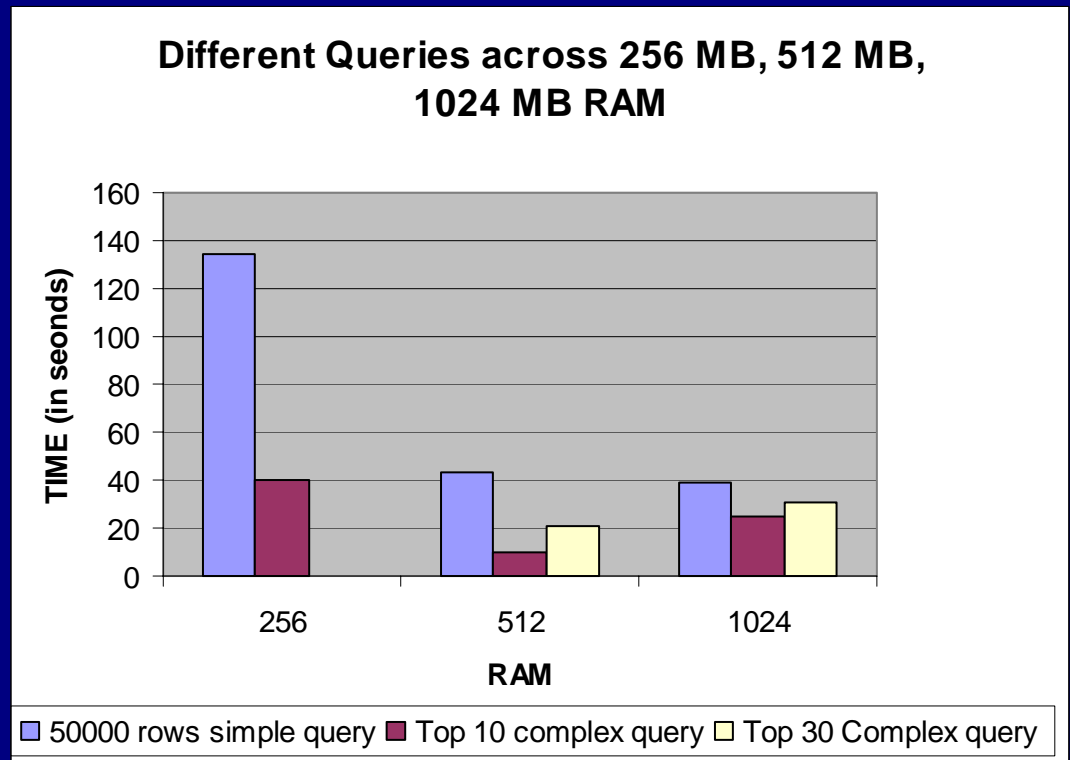
Major Scenarios Tested with different loads

100 users logged in, viewing reports, with 70 GB of data uploaded on server

Using 70 GB data

Time in Seconds

120		
100		39
80		
60		35
40	16	30
20	12	
0	12	
	Min Time	Max Time

◆ Simple Query ■ Complex Query ▲ Mixed

50 users creating a report using the same simple/complex query

70 GB Data 50 Users Create Report Using Single Query

Time in Seconds

5	
4	
3	
2	
1	
0	
Single Simple Query	Single Complex Query

Performance with different queries across different memory – Stress Testing

Different Queries across 256 MB, 512 MB, 1024 MB RAM

RAM — x-axis, **TIME (in seonds)** — y-axis

Legend: ■ 50000 rows simple query ■ Top 10 complex query □ Top 30 Complex query

* 'Top 30 Complex Query' not plotted in graph for 256 MB Ram, since it reported time out expired.

Detailed Description

Environment Setup:
a. RAM
   - 100 Clients - 512 MB
   - Server - 1 GB Ram
b. Operating System
   - Client - Win XP
   - Server - Win2K3
   - RDBMS – SQL Server 2000
c. Database Size
   - 70 GB data

Scenario 1: Check for number of users that can login to 1 KEY, starting from 100 to 1000.

Parameters
a. Number of users
   - 100 to 1000 users

Steps
   - Generated script to login to application
   - Run the script from multiple clients with ramp up
   - Repeat above step for varying number of users
   - After every 100 users connect, manually perform random operations (example – create user) to verify application functionality under load/stress

Conclusion
   - With the above setup, 1000+ login sessions can be created concurrently and the users can perform various operations (example – create user)

Scenario 2 : Check performance with 100 users logged in, viewing reports, with 70 GB of data uploaded on server

Type of Reports	Steps	Result (in seconds)		
		Min Time	Max Time	Average
Mixed	- Uploaded 70 GB of data - Created 100 SQL queries, both simple(accessing data from 1-2 tables) and complex(accessing data from 5-7 tables) - Recorded script for each user to show report - Login to application - Each user selects a unique report (total reports 100) and script run to show report - Monitored the response time	16	39 * On increasing the users to 114, 6 timeouts were recorded, when the report selected was associated with complex queries	28
Complex	- Uploaded 70 GB of data - Create a complex SQL query in database and corresponding report in application - Login to application - All users view the same simple report - Monitored the response time	12	35	24
Simple	- Uploaded 70 GB of data - Create a simple SQL query in database and corresponding report in application - Login to application - All users view the same simple report - Monitored the response time	12	30	21

Scenario 3: Check performance with 50 users creating a report using the same simple/complex query

Type of Reports	Steps	Result
Simple	- 5 instances of the application opened on 10 machines, simulating 50 users - Create a simple SQL query in database - All users create a report based on the simple SQL query - Monitored the response time	2 seconds
Complex	- Uploaded 70 GB of data - Create a simple SQL query in database and corresponding report in application - Login to application - All users view the same simple report - Monitored the response time	5 seconds

Scenario 4: Check performance with different queries across different memory

RAM / Query Type	256 MB	512 MB	1 GB
50000 rows simple query	134 seconds	43 seconds	
Complex query – fetching top 10 rows	40 seconds	10 seconds	
Complex query - fetching top 30 rows	Time out expired	21 seconds	

Section 3: Known Limitations

The following issues/limitations are known to exist in the 1KEY 2.0.1 version:

1. If the table is altered in database, the cube report are not updated accordingly

2. Changes made by any users can not be updated for the already logged in users unless they logout and login again.

3. The application does not support distributed database

4. Sql Server Express password for user 'sa' is hard coded is the requirement of the application.

5. The Help manual is not tested by Quexst.

6. Ms Access and MS Excel have to be on server machine as these are not the RDBMSs.

7. For Single Server User License Application, the user has to work on 1KEY server.