

# Triton Consulting

## Database Health Check

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## Introduction

As IBM continues to enhance the features and capabilities of DB2 in each new release, many clients are finding it increasingly difficult to remain up to date with best practice and ensure they are fully exploiting the many benefits that DB2 can offer. Ever-growing hardware and software costs continue to demand a focus on minimising resource consumption: a task that becomes more difficult as application complexity and heterogeneity increase.

Triton's Database Health Check aims to address these challenges by providing a comprehensive, structured review of the client's DB2 environment. Ideally, the Health Check process will be repeated on a regular basis in order to quickly identify any new issues and ensure that a client's environment follows best practice and is running efficiently.

This document defines the standard Terms Of Reference for the Triton Database Health Check. It is anticipated that these will be amended as necessary to address the exact requirements of specific client situations. However, the main tasks will remain constant.

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## Objectives

The objective of the Database Health Check is to identify those areas of the client's environment where DB2 usage does not correspond to industry best practice, and deliver a detailed set of recommendations for addressing those issues.

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## Scope

The scope of the study will include the following, in addition to any issues specifically identified by any previous reviews. Typically, the client's production environment will be the main focus of the study.

- **Database Server Capacity** – review the database server resources (CPU, RAM, storage) for the current and anticipated future workload and provide appropriate recommendations.
- **Database Software** – review the version of DB2 installed and whether any additional maintenance has been applied in the form of Fixpaks.
- **Instance & Database Configuration** – for each DB2 instance and DB2 database, there are a large number of parameters that can have a major impact on the performance and recoverability of the application. A general review of the configuration parameters is performed and recommendations made to ensure they are correctly set for the performance and recoverability requirements of the application.
- **Housekeeping** – as data is inserted, deleted and updated within the DB2 database, the tables will become disorganised. This can have a significant effect on the performance of data access requests, which in turn will impact the overall performance of any application. An additional issue to be considered is updating system catalog statistics. The health check reviews the housekeeping procedures in place and provides appropriate recommendations.
- **Backup & Recovery** – make sure appropriate database level backup and recovery procedures are in place to enable the business to recover from system failure.
- **Data Placement** – the default DB2 installation option is for all user tables and indexes to be placed in a single tablespace. This will be reviewed to ensure that tables and indexes are optimally placed for performance. This task should be conducted in conjunction with the bufferpool review.
- **Performance Monitoring** – DB2 includes tools that allow the instance and database to be monitored, on both a proactive and a reactive basis in order to improve application availability. These tools need to be configured before they can be effectively used.
- **Logging Configuration** – similar with other database systems, DB2 keeps a record of all data updates within its recovery log. The way in which the logging is configured can have a major impact on the integrity and recoverability of the data stored in DB2, so it is important to ensure that this aspect is reviewed.

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## Scope (continued)

- **Bufferpool Configuration** – bufferpools are memory areas used by DB2 to avoid repetitive I/O operations, by caching frequently accessed data within RAM on the DB2 server. Correctly configured bufferpools are usually a vital factor in overall application performance. A review is undertaken of the current bufferpool setup in conjunction with the data placement review to ensure bufferpools are correctly set up for optimum performance.

Furthermore, a series of consultations will be held on-site with relevant client staff, in order to determine the pattern and degree of DB2 usage in the key areas identified above.

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## Deliverables

The deliverable from this study will be the Database Health Check Report. This will use the structure shown below.

### Introduction

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### Management Summary

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### Assumptions

- A concise summary of any assumptions made during the study.
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### Issues

- A detailed list of any issues noted during the health check, with their potential impact on system performance or availability.
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### Recommendations

- A series of recommendations to address the issues previously identified.
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### Conclusions

**Hermes Group**, the consumer delivery specialist, provides flexible and affordable delivery options that put the customer in control whether sending, receiving or returning parcels to home, work, a neighbour, safe place or a ParcelShop. These include next day, standard, international and Sunday deliveries as well as ETA time windows for delivery and collection. Hermes has enjoyed double digit growth every year for the last six years, and handled more than 304 million parcels in 2017. 80% of the UK's top retailers trust Hermes with their parcel deliveries, including Next, ASOS, John Lewis and Arcadia. The company operates a network of over 14,500 self-employed couriers and more than 4,500 ParcelShops nationwide.

The IT systems underpinning the Hermes service are critical and time dependant needing to manage the delivery of up to 2 million parcels per day.

Triton Consulting was asked to perform a DB2 review alongside their staff to identify a series of mini-projects that would drive greater reliability and improved performance for the 2018 peak.

The scope of the review was as described above, with a detailed report and recommendations delivered in early 2018. Following that Hermes asked Triton to design and deliver against most of the recommended changes which included: upgrade to the latest version of DB2 – V11.1; actions to improve performance through the implementation of housekeeping tasks; removing orphan and defunct data; reorganizing fragmented data and specifically tuning non-optimal routines and Stored Procedures. Performance and reliability of the DB2 system has been greatly improved.

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 “The smooth and efficient running of our IT service is absolutely critical to the business across the year; however during peak when the volume of parcels going through the operation is significantly higher, it’s even more crucial to ensure that our IT infrastructure and processes are robust. Triton has provided a strong performance improvement programme that has delivered a real impact for us as we head into Peak 2018.”

**David Caldicott**  
IT Director at Hermes

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## About Triton

Triton Consulting are experts in Hybrid Data Management and Digital Transformation.

The company's team of consultants represent some of the most highly experienced and qualified in the industry, and are able to advise on a range of Data Management solutions including DB2 for z/OS, DB2 for LUW plus data related infrastructure and transformation services.

As well as expert consultancy in all areas of DB2, Triton Consulting also cover a wider spectrum of high level consultancy

including senior project management, technical planning, technical architecture, performance tuning and systems programming.

Triton Consulting has been providing consultancy services for over 25 years. Triton are internationally recognised for their DB2 expertise with five IBM Gold Consultants and six IBM Champions for Data and AI.

Find out more about Triton  
[www.triton.co.uk](http://www.triton.co.uk)

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